



THE NEW
AUGSBURG'S
DRAWING
SIXTH YEAR BOOK



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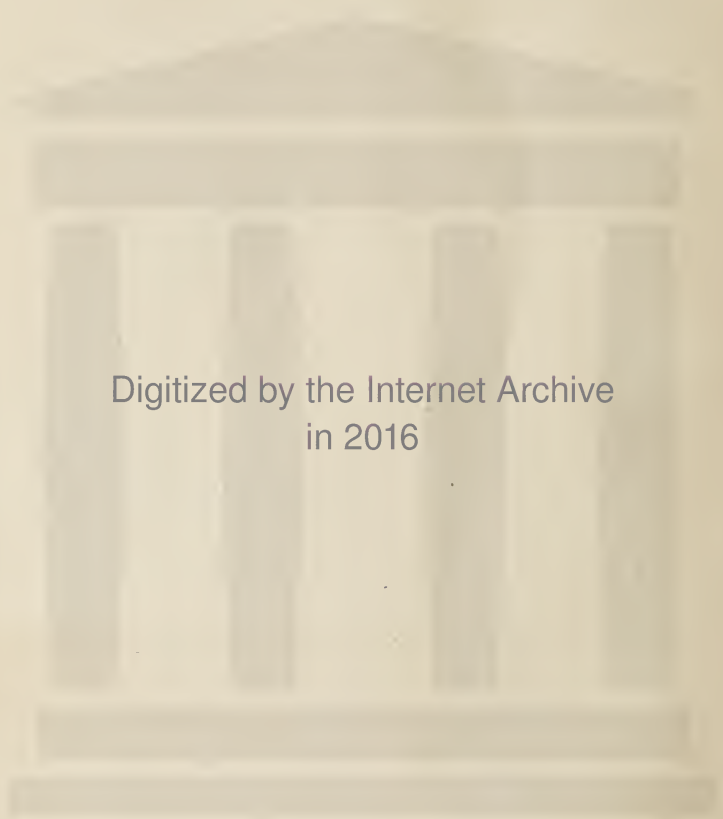
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The New Hugsburg's Drawing

SIXTH YEAR BOOK

A Text Book to be Placed in the Hands of the Pupils of
the Sixth Grade

BY

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GENERAL STATEMENT AND PLAN

The three great mechanical mediums through which we formally acquire and express thought are:

Language, the medium of communication.

Number, the medium of measurement, and

Drawing, the medium of form and color.

These three mediums or studies are fundamental in character, largely mechanical in construction, the elements are taught and learned more or less mechanically, and are the basis of all other branches.

The esthetic element is common to all of these mediums, in language as poetry, in number as rhythm, and in drawing as the artistic. This esthetic element is gained largely through absorption. The artistic, which is the esthetic element of drawing, cannot be taught in the direct manner of the mechanical elements, but is gained more slowly as the principle and the mechanical processes are learned. The mechanical elements of the above studies can be taught by all teachers and learned by practically all pupils, and during this process of teaching and learning the esthetic elements are more or less absorbed.

Drawing. Of the above studies drawing is the common means of expressing the great world of form. It is the form medium of the arts and crafts, the sciences, the engineering professions and the universal language of human industry. Its primary aim is:

To teach form.

And its secondary aims are:

The teaching of the art of representing form, including color, on a flat surface.

The development of skill, speed and freedom in the use of the hands; and

The giving of a form medium through which the imitative, constructive and esthetic instincts and powers may be developed.

The Fundamental Elements of Drawing. Drawing has its fundamental processes or elements, very much the same as number. We speak of the addition of number, the subtraction of number, the multiplication of number and the division of number. In very much the same way we may speak of the *Position* of form, the *Direction* of form, the *Shape* of form, and the *Proportion* of form.

Position, Direction, Shape and Proportion are the fundamental elements of drawing. These elements are largely mechanical, and through them the mechanical processes of drawing are taught.

Position relates to the *placing* of objects in the drawing. It includes *perspective* or the placing of objects different distances away; and *composition* or the arrangement of objects in a pleasing group.

Direction relates: To the kinds of lines used in drawing and to the surfaces represented by these lines; to the action expressed by lines as seen in growth, in inanimate form, in animate form and in rhythm, and to the expression of lines.

Shape relates to the form inclosed by lines. To the triangles, rectangles, circles, ellipses and ovals, and to their use in giving shape to the prisms, and a basis to form and design.

Proportion relates to the size, to the relative size of objects and parts of objects; to how large and how small objects should be by comparison.

These four elements run through the entire subject of drawing, dividing it, for the convenience of teaching and learning, into four divisions that include practically all the difficulties of the art. This is illustrated graphically in the following illustrated outline.

THE FUNDAMENTAL ELEMENTS OF DRAWING ARE POSITION, DIRECTION, SHAPE AND PROPORTION

POSITION IS PLACING OBJECTS. EVERY PART MUST HAVE ITS PLACE



PLACING THEM DIFFERENT DISTANCES AWAY AS IN

PER-SPECTIVE →



AND ARRANGING THEM IN A PLEASING GROUP AS IN **COMPOSITION** →



DIRECTION RELATES TO THE LINES USED IN DRAWING TO THE UNACCENTED LINES

LIGHT →
MEDIUM →
and HEAVY →



TO THE AC-CENTED LINES

GRADED →
EMPHASIZED →
and BROKEN →



DIRECTION RE-LATES TO ACT-ION TO THE ACTION OF LINES

AS SHOWN IN GROWTH →



IN INANIMATE FORM →



IN ANIMATE FORM



IN RHYTHM AND THE EXPRESSION OF LINES



SHAPE IN-CLUDES THE MEASURES OF FORM



THEIR USE IN DESIGN



IN FLAT DRAWING



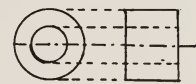
IN PARALLEL DRAWING



IN OBLIQUE DRAWING



IN MECHANICAL DRAWING



AND IN DECORATIVE DESIGN



PROPORTION RELATES TO THE RELATIVE SIZE OF OBJECTS



The Branches of Drawing. Drawing is divided into Free Hand Drawing, Mechanical Drawing, Decorative Design and Color.

Free Hand Drawing shows the appearance of objects. It is the art of representing objects in picture form and is divided into Flat Drawing, Parallel Drawing and Oblique Drawing.

Mechanical Drawing, or Constructive Drawing, as it is often called, shows the facts of form in such a manner that the object can be constructed from the drawing. It gives not only the fundamental elements of drawing, but the material element also. Mechanical Drawing is divided into Projection Drawing, Cabinet Drawing and Isometric Drawing.

Decorative Drawing relates to the ornamentation of form and the designing of articles for decorative purposes.

Color is common to all of the above branches. It is taught separately because ordinary drawing is rendered in black and white, and the methods of painting are different from drawing.

In the following outline on the opposite page, Drawing and its branches are arranged in a logical manner for teaching. It gives *first*—the subject, *second*—the lowest grade in which the subject can be taught to advantage, and *third*—the time of year that seems to give the best results. The plan is a guide until experience gives a better way.

It will be seen that in a general way the work is divided into:

- Object drawing which comes in the autumn.
- Formal drawing which comes in the winter, and
- Color drawing which comes in the spring.

Object drawing is general, comes every year, and is more convenient to teach in the fall of the year when objects are plentiful and easy to procure.

Formal Drawing is special. It includes the teaching of method, principle, and the technical elements that enter into drawing as an art, and aims to give the best result in the easiest way. Formal drawing should be given preference, in length of period and amount of time.

SUBJECT	WHERE TAUGHT	WHEN TAUGHT
Object Drawing	Taught in each year....	Fall

Position

Placing	1 and 2 years	Winter
Perspective	1 and 2 years.....	Winter
Composition	3 and 8 years.....	Winter

Direction

Lines	1, 2, 3 and 4 years ..	Winter
Surfaces	2 year	Winter
Action of growth	3 year	Winter
Action of inanimate form	4 year	Winter
Action of animate form—birds.....	5 year	Winter
Action of animate form -- animals	6 year	Winter
Action of animate form—human figure ..	7 year	Winter
Action of animate form—human face ..	8 year	Winter
Action of Rhythm — Rhythmic Exercises	1, 2, 3, 4 and 5 years.	Winter
Decorative design	5, 6, 7, and 8 years ..	Winter

Proportion

Relative size of objects	3 year	Winter
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Form

Triangles and rectangles	3 year	Winter
Circles, ellipses and ovals	3 year	Winter
Triangular and rectangular prisms.....	4, 5 and 6 years	Winter
Cylinders and spheres	7 and 8 years.....	Winter
Flat Drawing	1, 2 and 3 years	Winter
Parallel drawing.....	4 and 5 years.....	Winter
Oblique drawing	6 year	Winter
Mechanical drawing	7 and 8 years.....	Winter

Color

Colored Crayons	1, 2 and 3 years	Spring
Water colors — Object painting	4, 5, 6, 7 and 8 years.	Spring
Tints and shades	4 year	Spring
Hues and complementary tones	5 year	Spring
The Graded wash	6 year	Spring
The Broken washes.....	7 year	Spring
Light	8 year	Spring

Color work may be used at any time as a medium, but the teaching of color is, perhaps, more convenient in the spring.

Object drawing and object painting may be one.

The tools used in this drawing are those of universal use and application; they are the crayon, the lead pencil, the pen and the brush. The first two are tools and mediums in one.

The Crayon is the medium of freedom. Its range of utility is small, but for first efforts in drawing this is a desirable quality. Its economy, the ease with which it is applied and removed from the blackboard, the freedom, the large lines are all well adapted to the growing needs of the child and if rightly directed will impart ease, freedom and skill in the use of the hands.

The Lead Pencil, next to the crayon, is the most serviceable tool for work in the public schools. It has few faults and many excellent qualities, is ever ready for use, of an agreeable tone, and approaches the crayon in freedom and ease of application.

The Pen is the tool of precision. It represents the perfection of line drawing with ink as a medium, is permanent, exact, and is largely used in commercial drawing or work that is translated through the line.

The Brush is the tool of color. It is, perhaps, the greatest of tools and has the widest range of utility. In obedience to the guiding mind it is delicate or strong, fine or broad, soft, elastic, rapid and precise. A tool of such wide utility must of necessity have greater mechanical difficulties in its mastery, and this is its chief objection for use in the lower grades.

The Blackboard. There is no place equal to the blackboard for drill exercises in drawing. The largeness of the surface gives freedom, its publicity stimulates to effort and creates confidence, and the teacher can direct the work with the minimum of time and of effort. Economy, efficiency, freedom, and rapidity characterize blackboard drawing.

The Drawing System consists of eight books — one for each year, or grade. The number of the year corresponds to the number of the grade.

Thus the First Year Book covers the first grade, the Second Year Book the second grade, and so on.

In the First, Second and Third Year Books the text is addressed to the teacher and the drawings to both teacher and pupil.

LEADING FEATURES OF SIXTH YEAR DRAWING

Object Drawing. Give special attention to the drawing of square-cornered objects. Make the chalk talk a part of the special exercises.

Direction. The drawing of Animals and Decorative Design are the leading features of direction for this year.

Form. Oblique Drawing is the leading and most important subject of the year.

Color. The Graded Wash is the leading element.

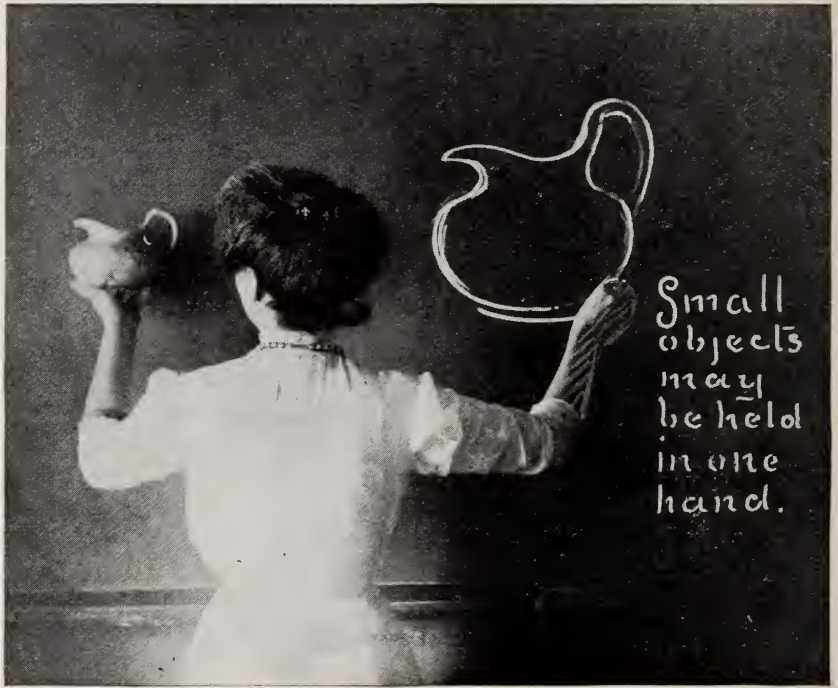


FIG. 1

THE NEW AUGSBURG'S DRAWING

SIXTH YEAR BOOK

OBJECT DRAWING.

General Methods. Drawing is taught in three general ways:

Through the object, called perceptive or object drawing.

Through the copy, called imitation or copy drawing.

Through the memory and imagination, called memory and imaginative drawing.

Each of these ways has its special use in reproduction. In drawing we reproduce a mental image. The source of this mental image is the object, how to represent this mental image is shown by the copy, and the test of how much we know of this mental image is shown by the memory and imagination. The *source*, the *how* and the *test* are mutually helpful. The object or source is the perfecting element, the copy is the explaining element, and the memory and imagination is the measure element, showing how much knowledge has been gained.

The Object and the Copy. The object or model is the source of the mental image, the copy shows how to represent the mental image on a flat surface.

The object gives ideas of form and color, of position and proportion, of direction and construction, and the copy or drawing shows how to represent these elements in picture form.

The object tells what to draw, and the copy how to draw it.

The object or model gives the idea to be reproduced, the copy gives the mode, the technique, the method, of how the idea is to be reproduced.

There is nothing in the object or model that shows how to draw it; we learn this through the work of others, through the drawings made by others, that is, by means of the copy.

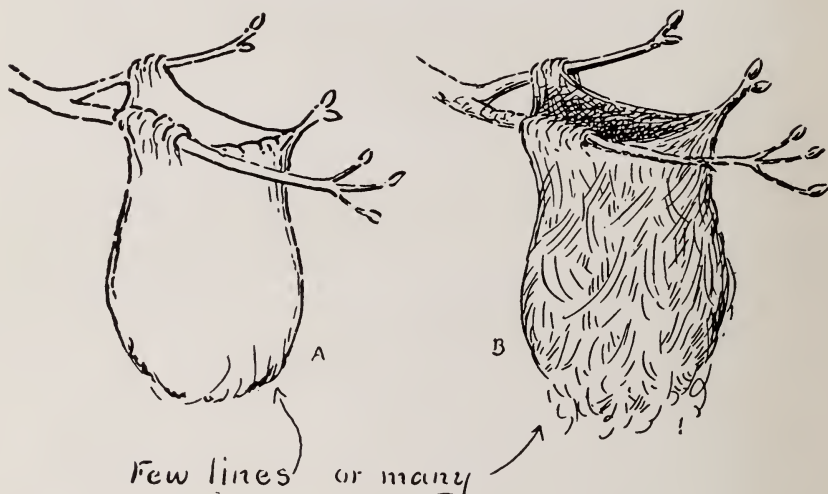


FIG. 2

Imitation. We cannot draw all that we see, nor represent the object exactly as it appears to the eye. Imitate as closely as we will our efforts are merely relative. Place a bird's nest before you, Fig. 2. You cannot imitate it exactly as it appears to the eye, but you can translate it; you can translate it with few lines as in A or with many lines as in B, but not as fully or completely as the real model. The real nest is the model to stimulate and perfect the idea or thought.

The drawing is never complete when compared with the object. There has never been a drawing made that was so complete, so perfect,

so beautiful, that it could not be made more complete, more perfect, more beautiful. Then if the drawing is never complete when compared with the object, it follows that, how much or how little of the object is represented, in what manner or style it is drawn, rests not with the unthinking object, but with the individual who makes the drawing.

We can draw an object in any manner we wish. We can draw the whole object or represent a part, we can make a section drawing, a perspective drawing, or a flat drawing. We can represent the drawing in outline or in mass, with few details or with many, in pencil, crayon or color. In fact, the whole question of how the drawing is to be made rests with the draughtsman.

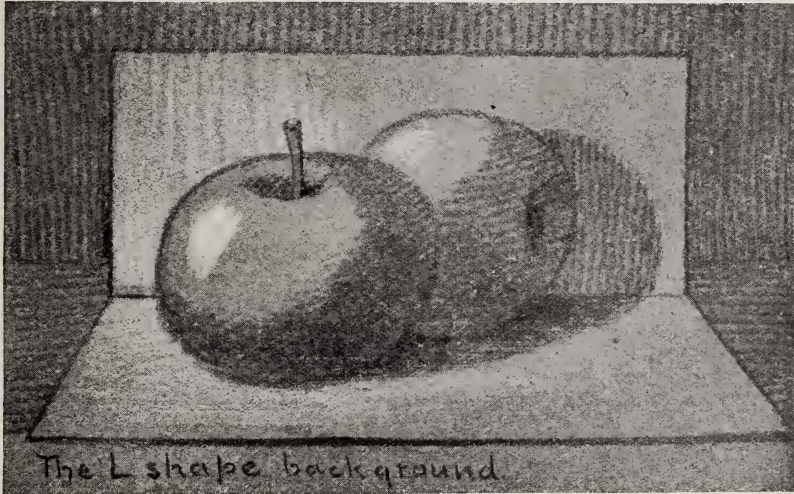


FIG. 3

Objects Suitable for Drawing. In general, objects suitable for first efforts in drawing are: Plain and simple objects, crudely formed objects, old and broken objects, and natural objects.

Plain and simple objects are easy to understand, which is a strong

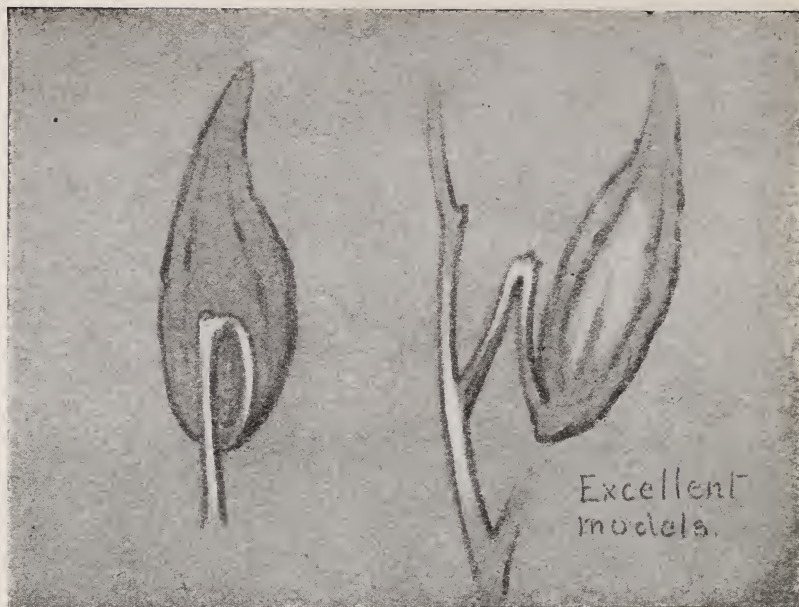


FIG. 4

factor in their successful reproduction. Crudely formed and finished objects have required little skill to fashion them and in consequence are easier to reproduce in drawing. Old and broken objects are more interesting than new and whole objects, much of their skilled accuracy is worn away and the interesting element of use is seen to better advantage; besides, they are easier to procure.

Decorated objects, delicately formed and finished objects, and complicated objects are generally not suitable for first efforts in this work. The objects used in this book have been successfully used for models in the class-room.

Collecting objects for drawing requires both thought and patience. A suitable collection is the most important element of success in object drawing. The teacher and pupils should work together to get the best collection possible.

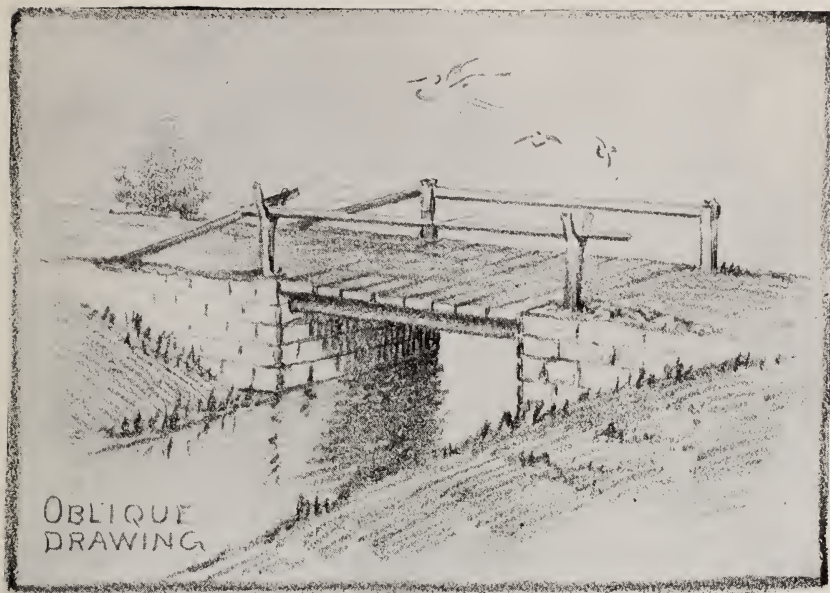


FIG. 5

Preparing Objects. Most natural objects need to be made more simple before being used as models. This is done by reducing the number of parts, and by removing many of those that are foreshortened. Confusion must be avoided. Two or three buds on a stem, three cherries in a bunch with a leaf attached, are enough for practice purposes. Small objects, such as fruits, nuts, small vegetables and similar objects, may be placed on the student's desk in an L shape background, Fig. 3, and when drawing at the blackboard, they can be held in one hand and drawn with the other, as shown in Fig. 1.

When the model is large like a pumpkin, basket or hat, then it can be arranged on the top of a vacant desk. The objects should rest on a level surface. When arranged on the top of a desk not more than

ten pupils can draw from the model or group. For fifty pupils not less than five groups will be necessary for good work. The pupils who sit in the seats on which the models are placed may take a vacant seat or draw at the blackboard. It is not necessary for all the pupils to draw from the same model or from the same kind of object.

Students should learn to place their own model. An object should be placed at least three times its height away from the one drawing it. It may be placed farther than this, but if nearer, it may appear distorted.

The size of a drawing is usually adapted to the size of the paper on which the drawing is made. Fig. 3 shows a good size for a pencil drawing. A drawing from three to five inches long on paper, and from eighteen to thirty inches long on the blackboard, is about right. Students should be encouraged to make their drawings large.

How to Study Objects. Much more will be gained by choosing one good object and drawing it several times, as in Fig. 15, or until interest begins to wane, than to draw from a new object each lesson. It is better to draw one object seven times than seven objects one time. Quality is more than quantity. Success and not variety is the key to progress. Students love to do that which they can do with some measure of success rather than take up new lines of work. They do not tire of an object as long as they feel that they are gaining power.

We cannot draw everything we see. We must discriminate between the very few essentials and the many non-essentials. An excellent way to decide what to put in the drawing is to ask the question, What am I drawing? Say a bridge, Fig. 5. Is it necessary then to represent the rocks and bushes and the distant hills beyond? No, not unless you want them in your drawing. You may draw only what you wish to appear in your picture and no more. Each one has the power to reject, but how to use this power to the best advantage must be learned through study and practice.

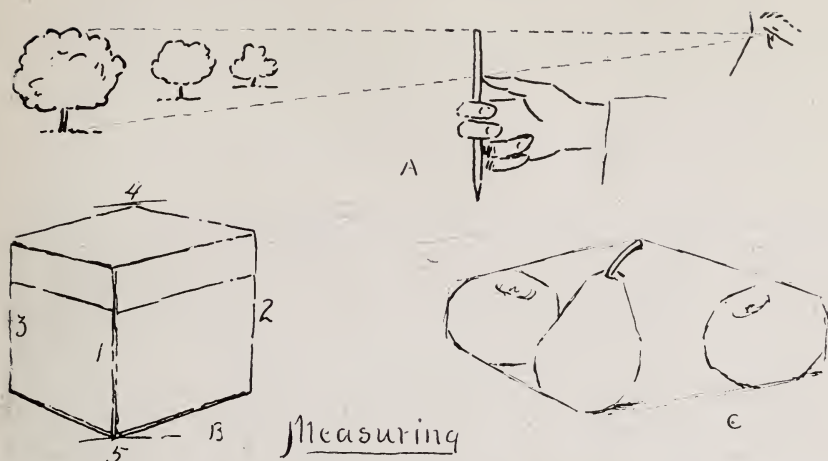


FIG. 6

Measuring with the Pencil is a device for comparing one object with another, such as the length of the object with the object, and also to assist the judgment in copying an object. It is done as follows.

To measure the length of an object with the pencil, hold the pencil at easy arm's length away as shown in A, Fig. 6. Close one eye. Let the upper end of the pencil be even with the top of the object and with the thumb mark the lower end. This is not the real height or length of the object as it appears in the drawing, but merely a proportional length with which to compare other lengths.

For practice, compare the height of a tree near by with one farther away; the height of a telegraph pole with the next one; the near edge of a box with the farther edge. Compare the height of a picture frame with its width. This is done by turning the hand on the wrist. Compare the height with the width of various objects until the comparison can be made easily. These measurements are all proportional and have nothing to do with the real size of either the drawing or object.

Place a box before you as in B, Fig. 6. Compare the length of edge

1 with edge 2. The length of edge 1 with edge 3. The length of edge 1 with the distance between edges 1 and 3. The length of edge 1 with the distance between edges 1 and 2. Compare the height of the whole box with its width.

Compare the length of a group of objects with its height.

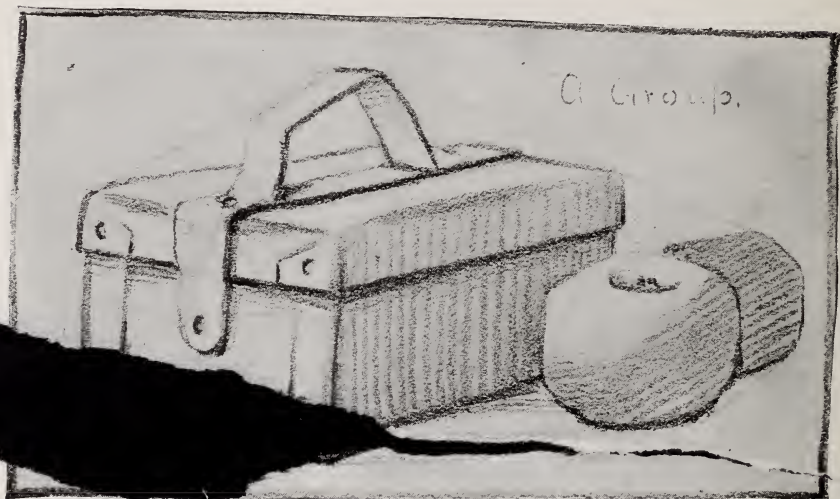
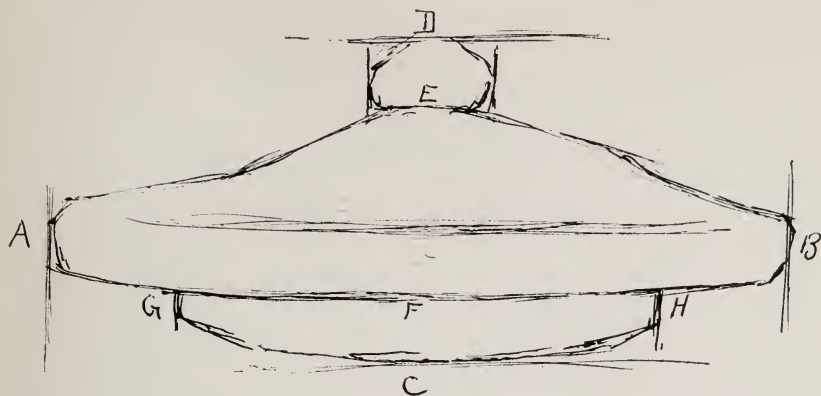


FIG. 7

Method is an orderly way of doing. It is an aid to the judgment, but should not take the place of the judgment. Simply knowing the method will not enable one to draw. Method is a tool to work with the same as a pencil, only less material; it is the road, but not the destination.

Perhaps the most direct and masterly way or method of drawing objects is to look at the object carefully. Study it. Then with light lines mark in the general form and proportion and then finish as shown in Fig. 7. This is the most direct way and the one toward which the learner should strive, but in the meantime there are many little methods and devices that will be found helpful in assisting the judgment and hastening this desired end.



A good general method.

FIG. 8

A General Method of drawing objects is as follows:

First. — Take the length or height of the object.

Second. — Find the width of the object.

Third. — Find the prominent points.

Fourth. — Lightly mark in and finish.

For example, place a cap before you as in Fig. 8. Take the length of the cap AB as long as you wish your drawing to be.

Mark the point C and find the height CD by measuring with your pencil.

Mark the prominent points, one by one, as the points E, F, G and H. Do this with the unaided eye. A point may be located very accurately if the mind is concentrated on it alone. We fail when we try to locate points and draw at the same time.

Last of all, mark in the outline lightly and finish as best you can.

The Measures of Form are excellent aids in recognizing the shape of the object and marking in the proportion. The measures of form are the triangles, rectangles, circles, ellipses and ovals, and are taught in the Third Year Book.

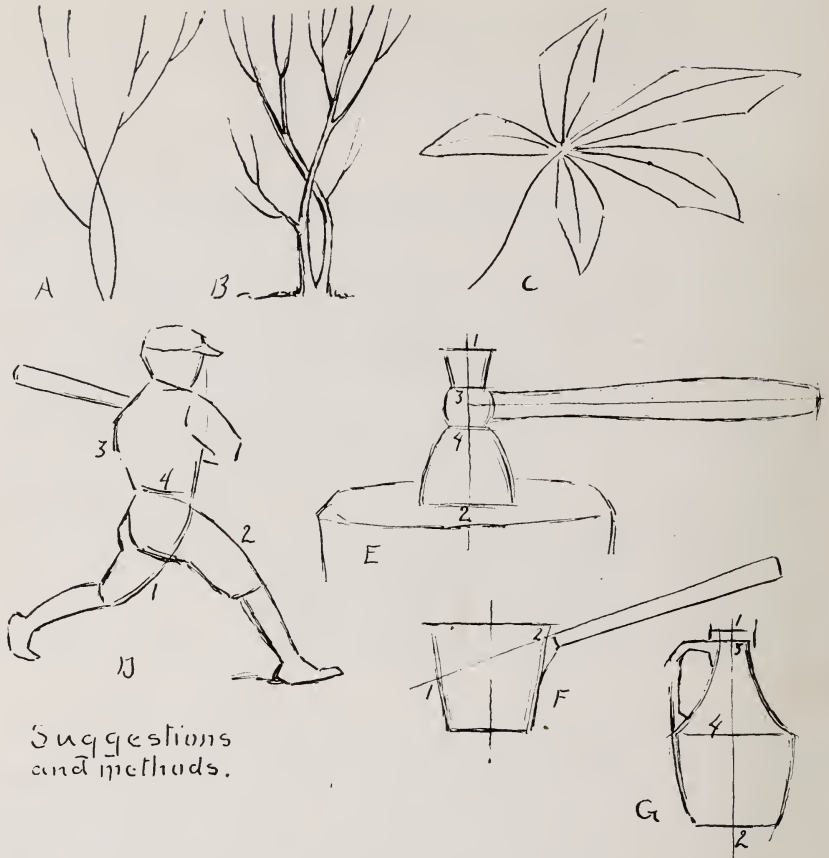


FIG. 9

Direction is one of the fundamental elements of drawing. See Direction in the Second Year Book. It is well to locate at the very beginning of the work the long lines indicating the direction and position of the most important parts. For example, in Fig. 9 indicate the direction of the trunk and principal limbs by a single line as in A, before adding the thickness of the limb as in B.

In such objects as the leaf C, establish the lines that mark direction, then mark in the proportion and lastly finish according to your model. If the direction is not correct no amount of shading will make the drawing right.

In such objects as D, establish the long lines such as lines 1, 2, 3, and 4, and if this is done correctly the shorter lines will easily fall into place.

The long lines are usually the most important and determine largely the action of the whole figure.

When drawing symmetrical objects, such as the blade of the hatchet, its handle, the bowl of the dipper and the vase, use a light median or middle line and on each side of it mark the widths and on it such points as 1, 2 and 3.

The aim is to divide the difficulties so that the mind has but one element to overcome at a time; first, the position, second, the direction, then follow the form and proportion.

Establish the length and direction of the handles by a single line before adding the thickness.

The slant of a line may be determined by noting with the edge of the pencil where it crosses another line. For example, the slant of the handle of the dipper F may be determined by locating the points 1 and 2. Locate point 1 by noting where the edge of the handle, if continued, would cross it in the object, and then mark it in the drawing.

Then by drawing a line through these points and extending it the slant of the handle is determined.

The importance of direction is underestimated. Often such elements as strength and weakness, stillness and motion, grace and discord, order and confusion, as well as action and expression are greatly influenced by direction.

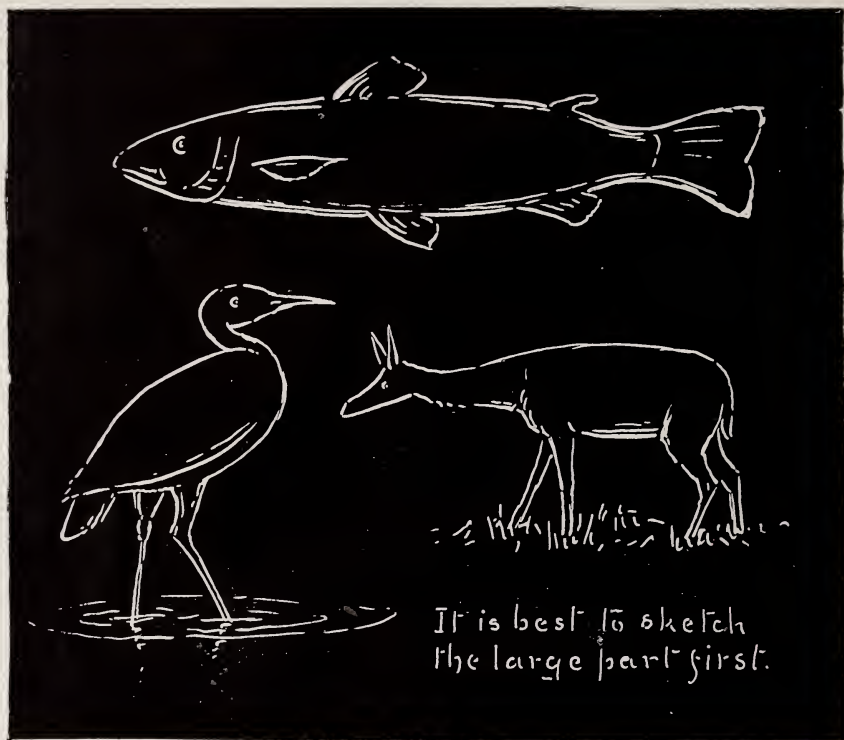
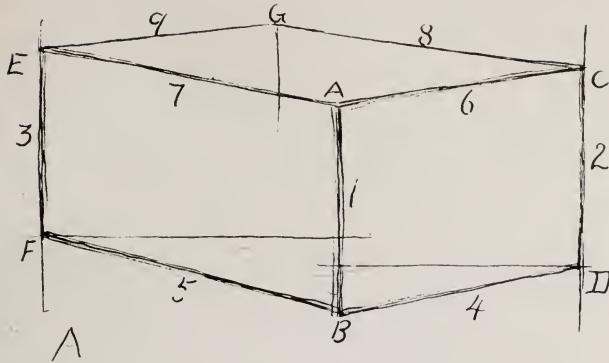


FIG. 10

Sketch the Large Part First. When an object is composed of several parts, it is best to sketch the large part first. For example, in Fig. 10 it will be found easier to sketch in the body of the fish, the bird and the animal, and to this large central part add the smaller details, such as the head, tail, legs or fins, than to begin with, say the nose, and to it add the head, the neck, body and so on. When drawing the human head, the human figure, or a group of objects, it is better to draw from the whole to the part than from the part to the whole. A method may become a habit. It is better to form the masterly habit of looking at things as a whole than to build the whole up from the part.



OBLIQUE DRAWING

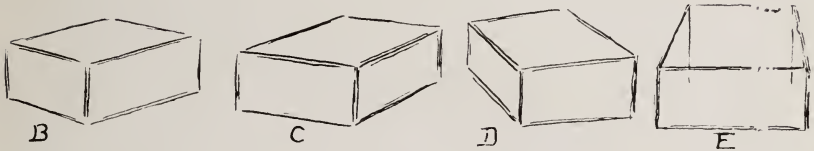


FIG. 11

Drawing Square Cornered Objects. A helpful method of drawing box-shaped objects is as follows:

- First* — Draw the nearest vertical line.
- Second* — Find the remaining vertical lines.
- Third* — Find the corners.
- Fourth* — Finish.

First Step: Draw the nearest vertical line. Place the box in position as in Fig. 11. Draw the nearest vertical line 1 any length you wish. This line, when drawn, becomes the unit of measure for all the other lines in the drawing. The length of this line determines the size of the box. If the line is drawn long, the box will be large; if short, small. The length of this drawn line has nothing to do with the real length of the edge it represents.

Second Step: Find the remaining vertical lines. Find the position of vertical line 2, by comparing the length of line 1 with the horizontal distance between lines 1 and 2, and making the same comparison in your drawing. Find line 3 in the same manner. Draw lines 2 and 3 lightly and of indefinite length.

Third Step: Find the corners. To find corner D in the drawing, pass your pencil horizontally through corner D on the box and note where your pencil crosses edge 1 — that is, how far above corner B or below corner A it crosses; mark this point in your drawing on line 1 and from this point draw a light horizontal line. Where this line crosses line 2, it will mark corner D. Find corner F in the same manner and draw lines 4 or 5.

Fourth Step: Finish. Draw lines 6 and 9 parallel with line 4, and lines 7 and 8 parallel with line 5, in the same manner as in Chapter on form. You can prove whether you have corner G in the right place by passing your pencil vertically through corner G and noting where it crosses line 7 or 6, and then making a similar comparison in your drawing. Any unknown point may be found by finding how far to the right or left and how far above or below it is of a given point in your drawing. For practice draw boxes placed in the position of B, C, D and E.

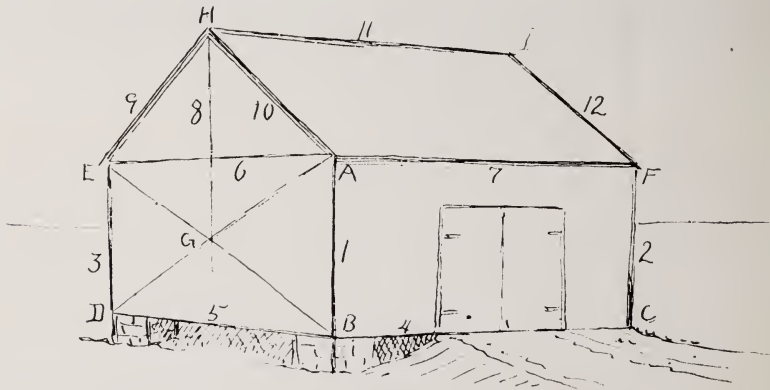


FIG. 12

In the drawing of houses proceed in very much the same way as with the box. Take line 1, which is the nearest vertical line and the unit of measure. Find lines 2 and 3 and in them locate the corners C, D, E and F. G is the center of the left front face, found by drawing diagonals. Line 8 is a vertical line from G. Locate the corners H and I and draw the lines 9, 10, 11 and 12.

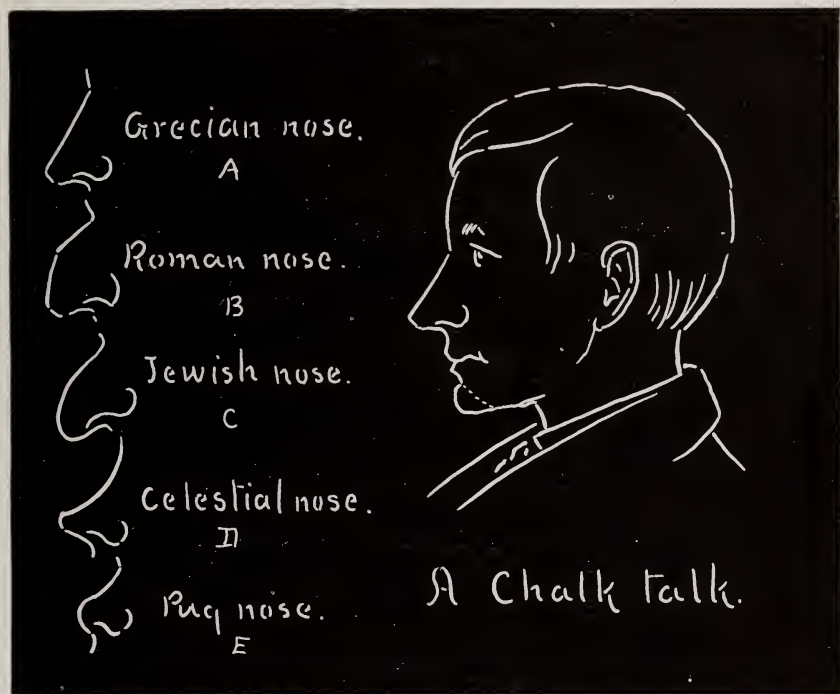


FIG. 13

Chalk Talks. A chalk talk is reproducing on the blackboard a drawing that has been memorized. The talk may or may not be accompanied by verbal language.

Chalk talks are valuable for the clearness of the thought required in preparing them, for the permanence of the knowledge acquired, for the skill gained by the hands working rapidly toward a definite end, and because they are interesting. After they have been successfully tried, a morning exercise or a Friday afternoon entertainment will hardly seem complete without several.

The method of preparing a chalk talk is to draw the picture representing the idea over and over until it is memorized — until it can be reproduced from memory quickly, easily and with a fair degree of accuracy. The first drawing in the memorizing process should be drawn carefully and much thought given to it, and then each succeeding drawing may be made more rapidly.

A chalk talk, without oral language, should not require more than two minutes in its delivery and one minute should be the average time. Groups of from two to five students may give their chalk talks at the same time.

For example, let a student learn how to draw a typical head as shown in Fig. 13.

The great historical noses are the Grecian, Roman, Jewish, Celestial, and to these may be added the pug. The chalk talk is to draw the typical head with the Grecian nose, then draw the nose at one side and print its name as A.

Erase the Grecian nose from the face and substitute the Roman nose and then draw it at one side as B.

Erase the Roman nose and substitute the Jewish nose and draw the nose at one side as C.

Erase the Jewish nose and substitute the Celestial nose, and lastly the pug nose.

Such a chalk talk is both instructive and interesting.

The sources of chalk talks may be drawn from any department of school work.



FIG. 14

Lists of Objects Suitable for Drawing

Seeds and Seed Pods, such as the maple, box-elder, linden, poppy, milkweed and sweet pea. Hold them in one hand and draw them with the other.

Grasses, and similar growth, both green and dried, such as the clover, timothy, sorrel, flax, oat, wheat, alfalfa and many weeds. Represent the stems with one line and the joints by means of a space, as shown in Fig. 14.

Buds. Have not more than one, two or three buds on a stem. Until considerable power is gained, it is best to pinch off the foreshortened buds. The pussy willow, the various catkins, the lilac, poplar and chestnut are excellent examples.

Leaves. Those with a smooth edge such as the lilac, ivy and clover should be used at first. Avoid leaves with a complicated edge or outline. Draw the single leaves in many positions as shown by the drawing, Fig. 15. Draw a stem with one, two or three leaves on it.

Flowers. Wild flowers and the more simple varieties of cultivated ones, such as the sweet pea, buttercup, violet, pansy, dandelion, and any kind that has few parts and a simple arrangement. Avoid confusion by cutting away the complicated parts.

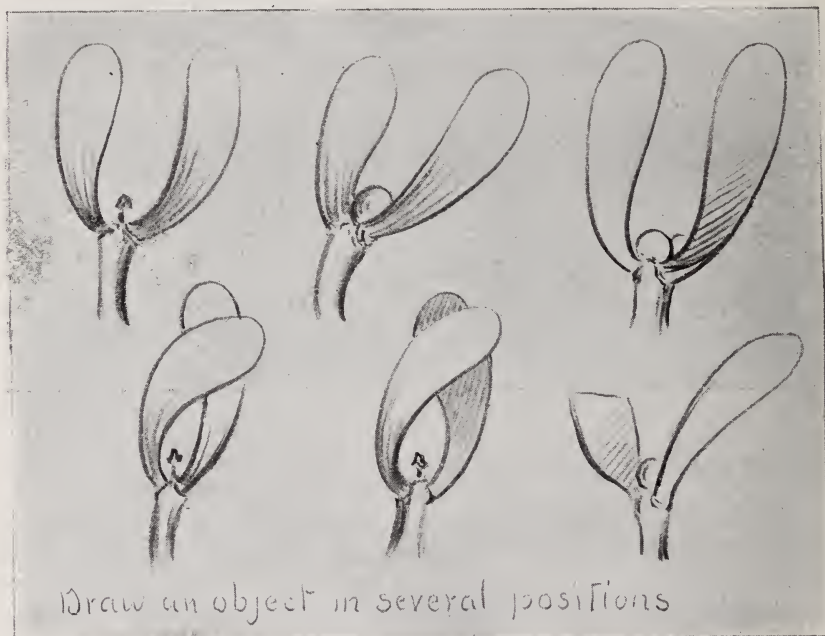


FIG. 15

Vegetables. The cucumber, squash, pumpkin, carrot, radish, pepper, onion, turnip, peas and beans. Cut the tops of such as the onion, turnip and carrot two or three inches from the vegetable.

Nuts. Butternuts, hickory, walnuts, almonds, hazel, acorns, beech and peanuts are all good. A cluster of two or three hanging from the

stem is very interesting. Cut or saw a nut in two crossways or lengthways, and make a drawing of the section.

Fruit. An apple, pear, lemon, peach or orange hanging from a stem with one or two leaves, two or three cherries in a bunch, a cluster of a half a dozen grapes, currants and gooseberries on their stem are all good models. A tomato on its stem, a branch containing berries, and the fruit family in general, make excellent models. Fruit should be picked green for this purpose. Sections of fruit such as the half or quarter of an apple, are interesting.

Trees. Excellent models. Avoid details and aim for the general form. Draw the same tree a number of times. For first efforts, choose a tree with thick foliage, standing alone, with a plain background. Stand away from the tree far enough to eliminate the smaller details such as the leaves and small limbs. Use a soft pencil with a large lead and a blunt point. Groups of trees are good.

Bits of Landscape. A large rock, a group of rocks, a stump and log, a clump of grasses or rushes, a water trough, an old pump, a gate, bars, corner of fence, an old bridge, an old building of any kind, a turn in the path or road, a point of land, rocks or a log projecting into the water. A tent, hut or bird house, chicken coop, bee-hive, or cage, all will make fine models if well chosen.

Things. Small objects, such as keys, old knives, shells, fish hooks, sinkers and small padlocks. Fruit and similar baskets, stone ware in the form of jugs, jars, pitchers, vases and similar vessels, hats, caps, umbrellas and other articles of wear, mounted birds and birds' nests, feathers, and a very wide range of similar objects.

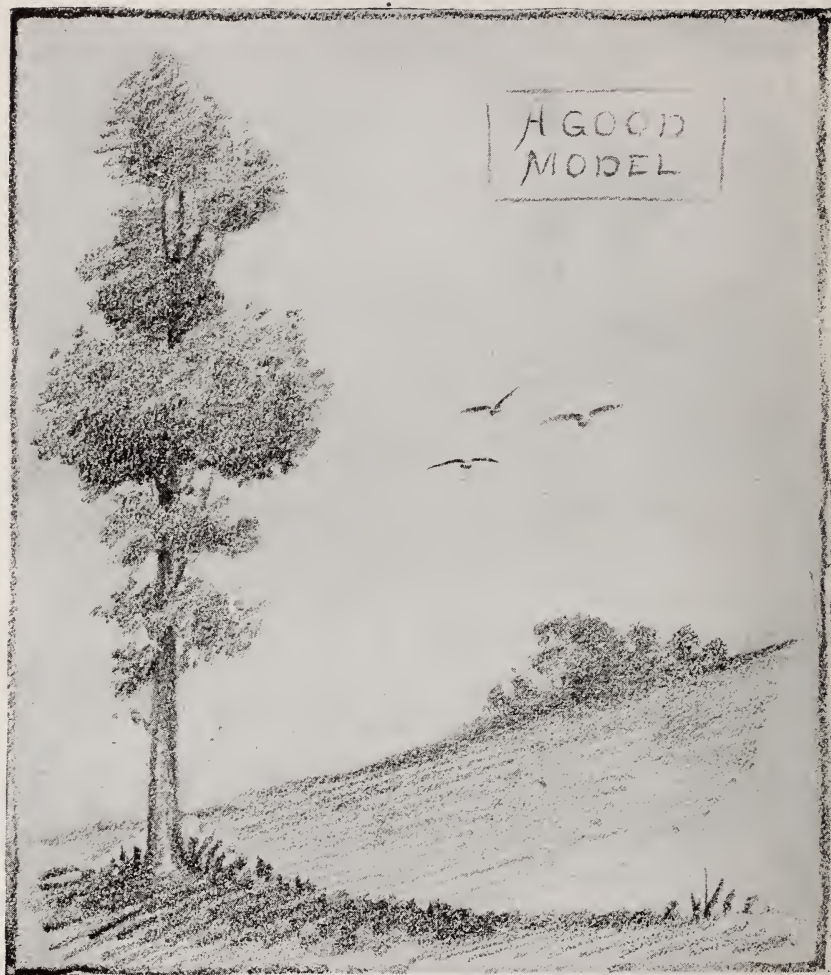


FIG. 16



FIG. 1

FORM

Direction indicates the surface of objects. In Fig. 1 observe that a horizontal line indicates the level surface of the water. The shed rests on a horizontal surface indicated by horizontal lines. The vertical lines of the sides of the shed represent vertical surfaces and the oblique lines of the roof an oblique surface. In the distance the outward curved line of the hill on the right indicates an outward curved surface and the hill on the left an inward curved surface, while the oblique sides of the mountain in the distance are shown by the oblique lines.

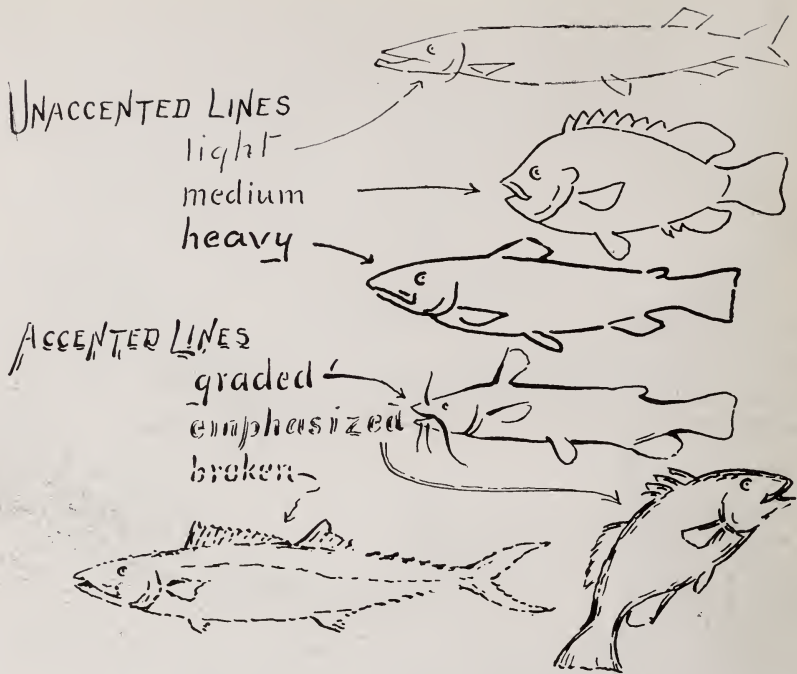


FIG. 2

Direction in Drawing is Indicated by Lines. There are two general classes—the unaccented and the accented lines.

The unaccented lines are the light, medium and heavy lines and are taught in the First and Second Year Books; the graded and emphasized lines of the accented group are taught in the Third Year Book, and the broken line in the Fourth Year Book. Surfaces are taught in the Second Year Book.

The Graded Line is the most important line used in drawing. It is the most rapid, the most serviceable, and the most pleasing of all the lines. This line should be learned, however long it may take, or however great the exertion put forth in learning it. Learn to draw it from light to heavy, or from heavy to light, at pleasure.

The Emphasized Line is a line accented by drawing one or more lines parallel and close to it in such a manner that the general effect is that of one line or direction. Important lines and round surfaces may be emphasized.

The Broken Line is to indicate a broken surface, such as the roughness of ground, the irregularity of grass, or the broken appearance of stone, or the bark on tree trunks. Both the broken and emphasized lines may be and are usually graded.

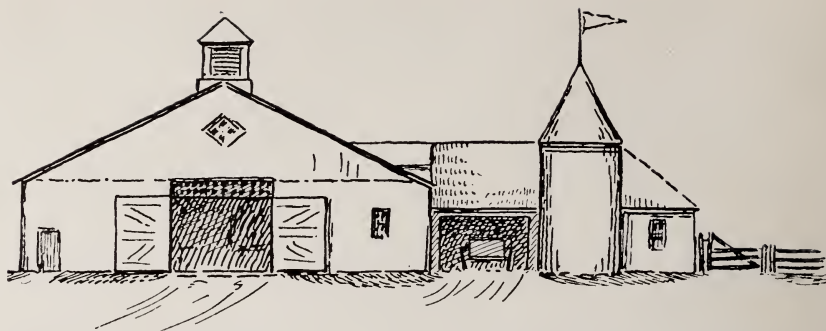
All that is truly great comes to us by slow degrees. It is the same in acquiring these lines. There is the least character in the unaccented lines, and the most in the accented; hence these latter are more gradually acquired, and of these the broken line seems to be the last one to be learned.

The different lines should be learned so well that they can be used at any time and in almost an automatic manner. Lines are the words of the drawing language. If they are not learned, they cannot be used, or, if learned imperfectly, their use will be labored and imperfect.

Measures of Form. Form relates to the shape of objects. The triangles, rectangles, circles, ellipses and ovals are the fundamental forms or shapes that are the most serviceable in drawing. These forms in mathematics are called geometrical forms and in drawing are sometimes called type forms, but a still better name is **measures of form**, for their use in drawing is to measure form. They are standards or measures of form very much as a pound is a measure of weight, a gallon, of liquid, or a dollar a measure of value.

Proportion. Form tells the shape of objects, and proportion the relative size of objects. In the study of form and in the use of these form measures the two are so closely related that they are practically one. So true is this that measures of form and measures of proportion are nearly identical terms, so while the form element in these lessons is primary, still the proportion element is more or less present, the same as the elements Position and Direction are present.

The Use of Measures of Form is to aid in recognizing and grasping the shape and proportion of objects to the extent that they can be reproduced in drawing. They also aid in making complicated objects



Measures of Form are used in drawing
and designing buildings

FIG. 3

simple and easy to grasp as a unit. These geometrical forms are measures of form in the sense that we recognize other and more complicated forms through their aid.

Measures of form to be used must be thoroughly learned — learned so well that they can be drawn easily and quickly. They must be learned as the multiplication table is learned, and be known as the mechanic knows his tools.

These measure forms are common in buildings. The barn in Fig. 3 is made up of triangles and rectangles that may be easily traced.

These forms are very common and are traceable more or less in all natural objects. In the natural objects in Fig. 4 these circles, ovals, ellipses, rectangles and triangles are common. And in the animate world these form measures are equally common. In the birds and animals in Fig. 6 these forms are very prominent and can be traced with little effort.

The use of the measures of form is this: If they are thoroughly learned they enable the mind to grasp the proportion of objects to the extent that they can be transferred to paper easily and with greater accuracy and speed than it is possible without their aid.

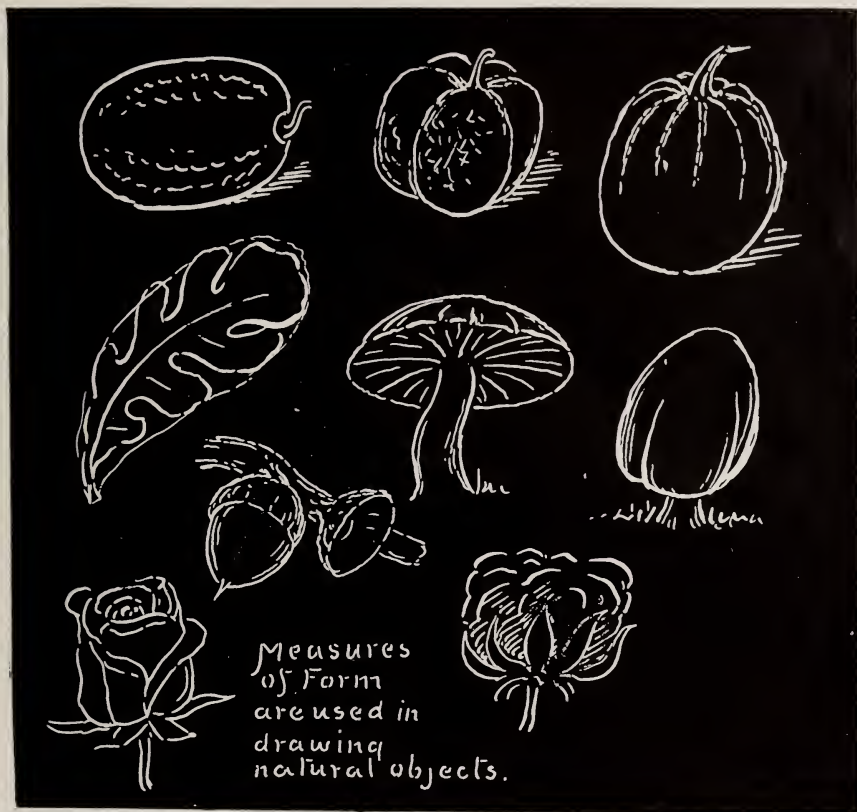


FIG. 4

These forms are a great aid in simplifying complicated objects. For example, the birds and animals in Fig. 6 and the natural objects in Fig. 4. It does not mean that these measure forms are first drawn and then the object fitted to them. This would increase rather than diminish the difficulties. It means that these basic forms having already been learned, enables the draughtsman, through their aid, to grasp similar shapes more easily. These forms are not patterns so much as helps in seeing and comprehending the shape of objects.

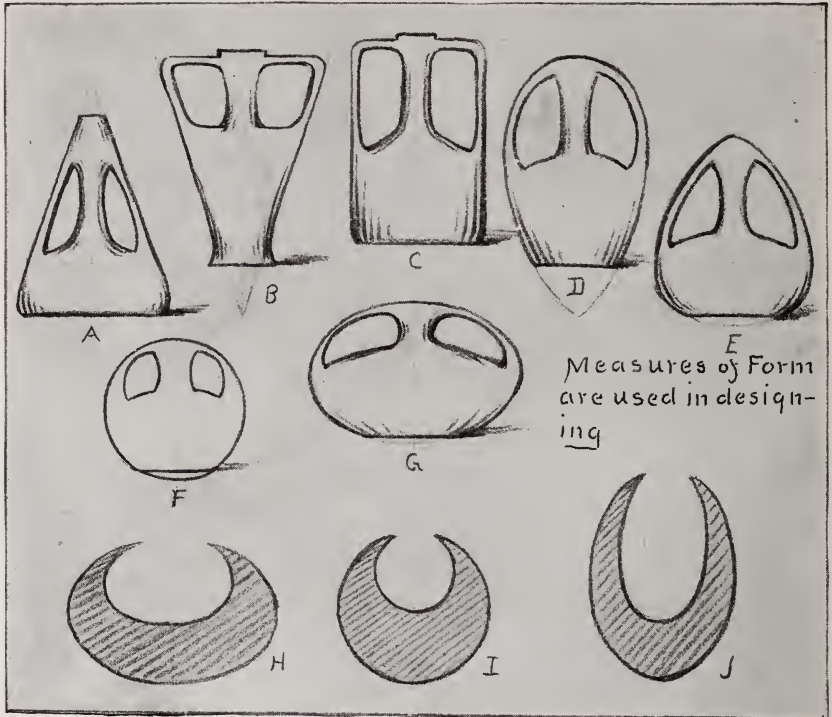
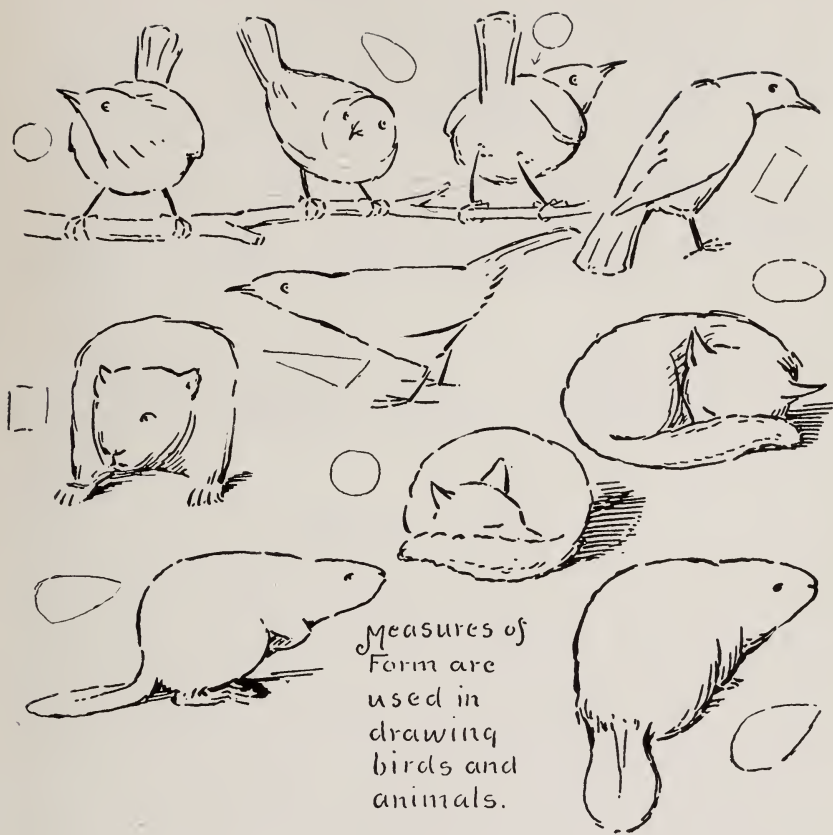


FIG. 5

These forms are the greatest aid in giving a basis for practical design. They say to the designer you can make your design triangular, rectangular, circular, elliptical or oval, and having learned these forms thoroughly, there is no difficulty in using them. For example, I, Fig. 5, is a crescent. A pupil would have no difficulty in modifying the crescent as in H and J if he knew these forms. Again F, Fig. 5, is a round vase. If students are taught these forms, they could modify the vase to the various shapes as shown in A, B, C, D, E and G.

These measures of form, therefore, are to aid in grasping the proportion, making complicated objects simple, and to give a basis to design.



measures of
Form are
used in
drawing
birds and
animals.

FIG. 6

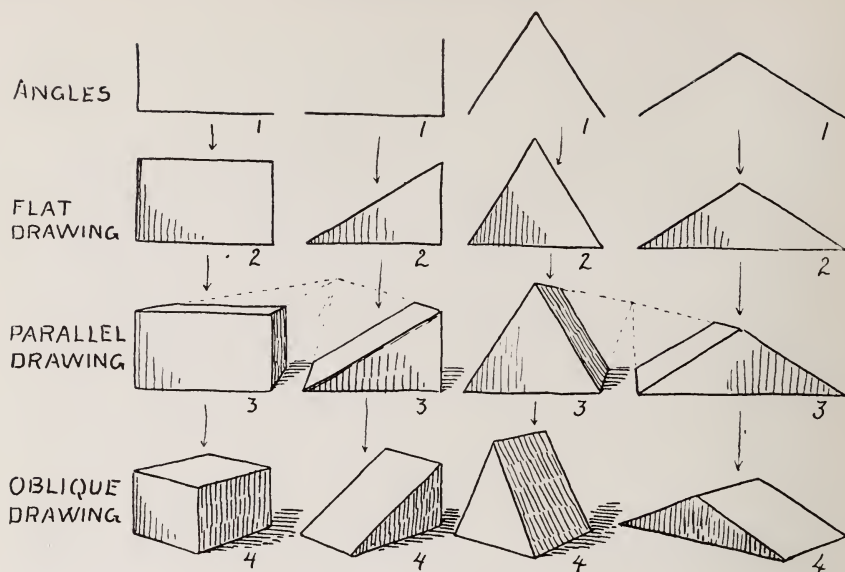


FIG. 7

OBLIQUE DRAWING

We have studied the angles and forms as shown in the first two horizontal rows of Fig. 7, in the Third Year Book, and the parallel prisms as shown in the third horizontal row, in the Fourth and Fifth Year Books. Now we will study the prisms in oblique drawing as shown in the last horizontal row. Because these prisms or objects are at an angle with the picture plane this is called oblique drawing or oblique perspective.

Thus far the center of vision has been used as an aid in drawing receding surfaces and to give a definite point to which all receding lines are drawn, as shown in the third horizontal row of Fig. 7. But now we have advanced far enough to dispense with the aid of this point and to depend on the unaided eye in drawing the surfaces. Our guide now will be: Does the drawing appear right? If it appears right we are to take it for granted it is right, for to us this will be true until our ideals become more perfect.

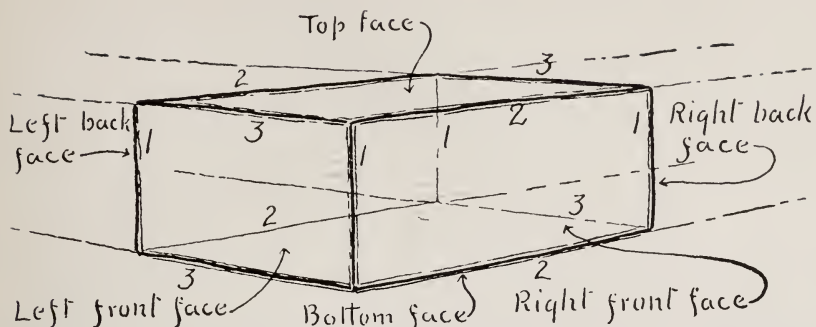


FIG. 8

The fundamental form for this kind of drawing is the rectangular prism or box form as drawn in Fig. 8. This is the measure for square cornered objects in oblique drawing. This form must be thoroughly learned. It must be drawn over and over until it can be drawn with ease and a fair degree of accuracy and the measure of this accuracy is based on the judgment alone.

Place before you a common pasteboard box in the position of Fig. 8 and observe the three sets of lines, 1, 1, 1, 1, 2, 2, 2, 2, and 3, 3, 3, 3. The lines of the first set are vertical and parallel. The lines of the sets marked 2 and 3 are receding and consequently converge slightly, but in drawing they should not appear to converge, but should appear parallel and natural.

Draw the rectangular prism in the order of the numbers beginning with line 1, then line 2, and so on as shown in A, Fig. 9.

The faces are named top, bottom, right front, left front, right back, and left back.

Draw all prisms and objects with light lines and then finish with heavier.

Draw the receding lines longer than they appear in the object, so as to judge more accurately of their correctness.

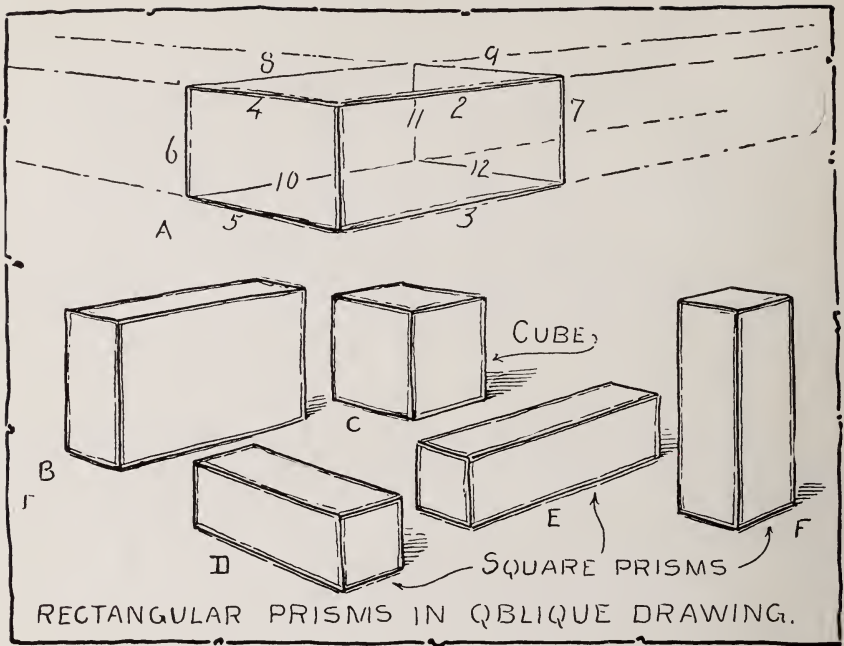


FIG. 9

All the prisms in Fig. 9 are rectangular prisms (right angled solids). When the faces are equal as in C they are called *cubes*, and when the ends are square and the sides longer, as in D, E and F, they are called *square prisms*. This will leave such prisms as A and B to be called *rectangular prisms*.

The rectangular prisms, except the cubes, have three directions: vertical direction as in F, right receding direction as in E, B and A, and the left receding direction as in D.

A may be considered the typical rectangular prism. Draw it in the order of the numbers, beginning with 1. Draw it about three inches long on paper and about sixteen inches long on the blackboard.

Drill Exercises

1. Practice drawing the rectangular prism A.
2. Draw prism A in a left receding direction.
3. Draw rectangular prism B.
4. Draw prism B in a left receding direction.
5. Draw prism B in a vertical direction.
6. Draw the square prism D.
7. Draw the square prism E.
8. Draw the square prism F.
9. Draw a cube. Why has not a cube direction?
10. Draw a cube and add similar ones to the right front and left back faces.
11. Draw a cube and add similar ones to the left front and right back faces.

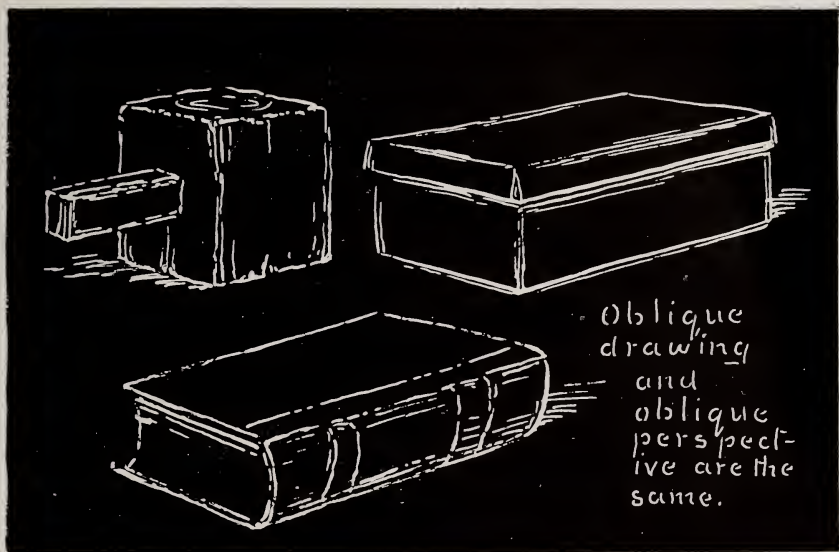


FIG. 10

Fig. 10 shows three simple applications of the rectangular prism in oblique drawing.

1. Draw the box.
2. Draw the box in a left receding direction.
3. Draw the box in the position of B, Fig. 9.

4. Draw the mallet, Fig. 10.
5. Draw the mallet with the handle from the right front face.
6. Draw the mallet with the handle from the top face.
7. Draw the mallet with the handle from the right back face.
8. Draw the book. It is drawn in a right receding direction.
9. Draw the book in left receding direction.

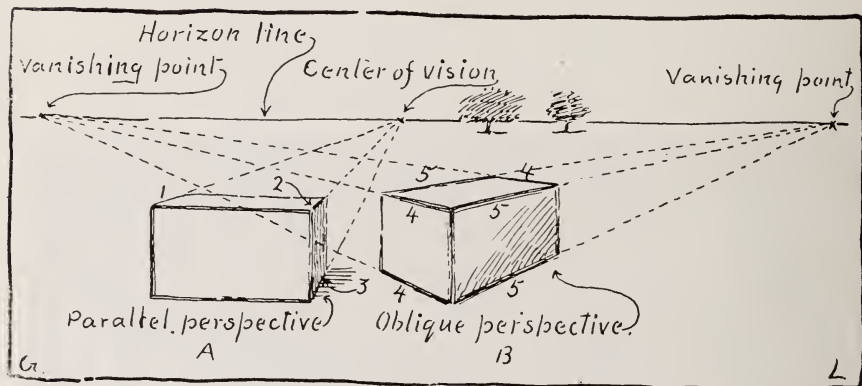


FIG. 11

Terms and Definitions. The Picture Plane is the real surface or plane on which the picture is drawn, as the paper or blackboard. The Ground Plane is an imaginary plane at right angles with the picture plane. It begins at the ground line G L, Fig. 11, and reaches out to the horizon line.

Vanishing Points are points in which parallel receding lines vanish. The center of vision is the vanishing point for all horizontal receding lines, that is, for all lines at right angles with the picture plane. The center of vision is the only vanishing point that is of practical use in Free Hand Drawing. There may be as many vanishing points as there are sets of receding lines, but the center of vision is the only one used.

In Fig. 11 there are two boxes, A and B. Box A is such as we have been drawing in parallel perspective. The front face is parallel with the picture plane and it contains vertical, horizontal and horizontal receding lines, the latter of which always vanish in the center of vision.

Box B is drawn in oblique perspective. It has no face that is parallel with the picture plane and only two kinds of lines, the vertical and the oblique horizontal receding lines. These latter vanish in the horizon line right and left of the center of vision, but the vanishing points themselves are not used in making the drawing.

Receding lines 1, 2, and 3 are horizontal receding lines, and lines marked 4 and 5 are oblique horizontal receding. For short the first kind may be called receding lines and the latter oblique receding lines.

It is not practical to use the vanishing points other than the center of vision in ordinary drawing, nor at all desirable. One point and often both are outside of the paper on which the drawing is made and so are too far away to be of convenient use. Then, if they are used, they draw attention away from the object, where it should be concentrated, and thus the judgment is not brought into use in the way that is most helpful. While the use of these points is not practical, still a knowledge of them is helpful as an aid in determining the slant of lines and the place of the object in the picture.

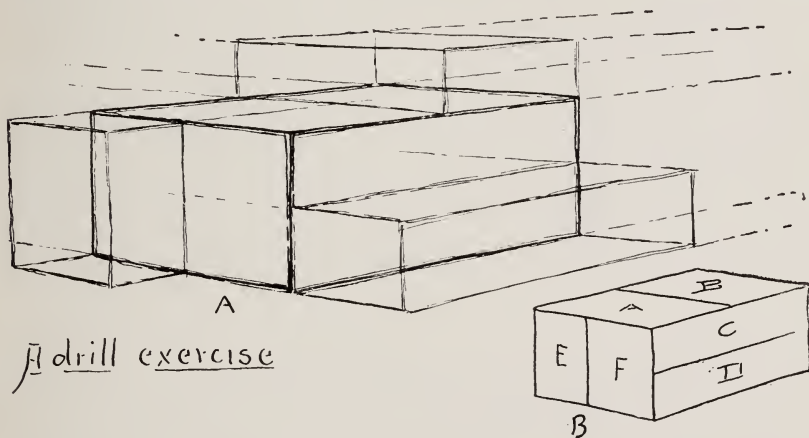


FIG. 12

B, Fig. 12, is a rectangular prism with the visible faces divided into two parts and marked with a letter.

In the drill exercises, draw a rectangular prism similar to the large one A and to the faces add a similar prism as given below.

Drill Exercises

1. Draw a rectangular prism and add a similar one to face B.
2. Add a rectangular prism to face A.
3. Add rectangular prisms to faces B and D.
4. Add rectangular prisms to faces B and E.
5. Add rectangular prisms to faces A and F.
6. Add rectangular prisms to faces B, D and E.
7. Add rectangular prisms to faces A, C and F.

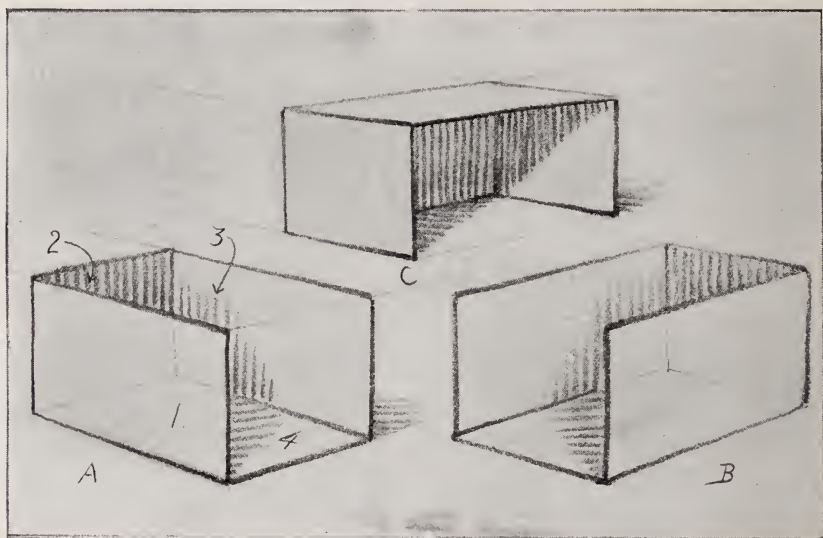


FIG. 13

Shading. It is the office of shade to strengthen the weak parts of the idea. Shade is not an essential element of drawing, but is an aid to expression. In these exercises those faces may be considered weak that are represented by less than four lines and shade may be added to strengthen these places. Shade may be regarded as a tool to work with the same as a pencil, only less material. It is a means of bringing out the idea and making it plain.

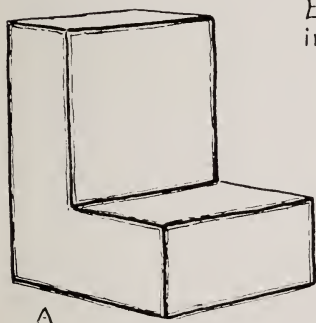
In Fig. 13, those faces are shaded that are represented by less than four lines. In Box A, face 1 is represented by four lines, hence needs no shade to strengthen it. Face 2 is represented by only two lines, hence may be regarded as weak and shade lines may be used to help out and strengthen it. Faces 3 and 4 are weak where they are covered by face 1, hence are strengthened with shade lines in those places.

This method is not intended to limit the use of shade. Shade may be placed anywhere if there is a reason or desire back of it. This merely shows a simple method that pupils can readily use.

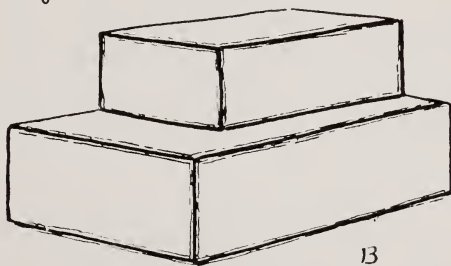
Drill Exercises

1. Draw a box and remove the top face.
2. Draw a box and remove the top and left front faces.
3. Draw a box and remove the top and right front faces.
4. Draw a box and remove the top and left back faces.
5. Draw a box and remove the top, left front and right back faces.
6. Draw a box and remove the left front and bottom faces.
7. Draw a box and remove the right front and right back faces.
8. Draw a box and remove the left front, left back and bottom faces.

Excellent models to use
in object drill



A



B

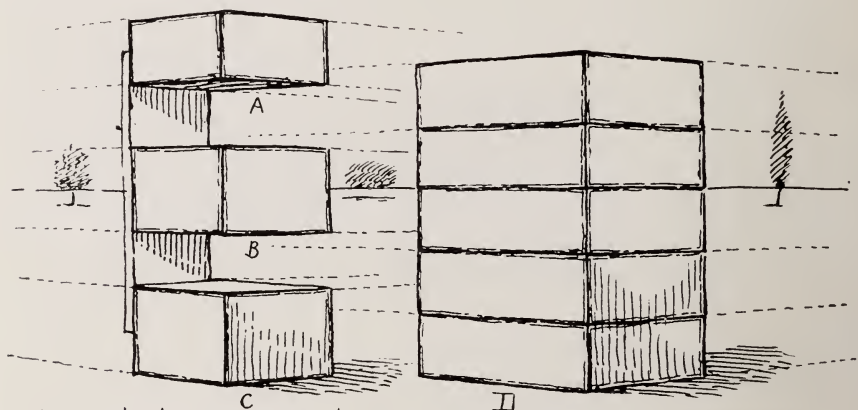
FIG. 14

The two blocks, A and B, Fig. 14, are excellent models to use here. These models are to be held in the hand when drawing at the blackboard or placed on the desk when drawing at the seat. It is not necessary

to reproduce the model in exact proportion or position in order to learn the principle of drawing. When using these models exactness of appearance or proportion is not as desirable as exactness of principle.

Draw from the models until they can be used effectively.

Application of the oblique rectangular prism may be any object that has straight lines and square corners. Any of the objects or drawings used in parallel drawing may be used in oblique drawing. See Object Drawing, Figs. 5, 7, 11 and 12.



Lines below the level of the eye, that recede, slant upward and those above downward.

FIG. 15

Oblique Drawing and the Horizon Line

The rectangular prism obeys the same law in regard to the horizon line as in parallel perspective. Objects below the level of the eye show the top face, those above the level of the eye the bottom face, and those on a level with the eye neither the top nor bottom faces, as shown by A B and C, Fig. 15.

Observe in the pile of rectangular prisms D, that those receding lines below the level of the eye slant upward and those above the level of the eye slant downward, and those on a level with the eye are horizontal. The horizon line determines the slant of the receding lines. The farther the object is above or below the level of the eye the more the receding lines slant.

Drill Exercises

1. Draw a box below the level of the eye.
2. Draw a box above the level of the eye.
3. Draw a box with the top on a level with the eye.
4. Draw a pile of 5 boxes, 3 below the level of the eye, and 2 above.
5. Draw a pile of 5 boxes, 2 below the level of the eye and 3 above.
6. Draw the mail box, Fig. 16.
7. Draw the mail box below the eye.
8. Draw the mail box with the bottom on a level with the eye.

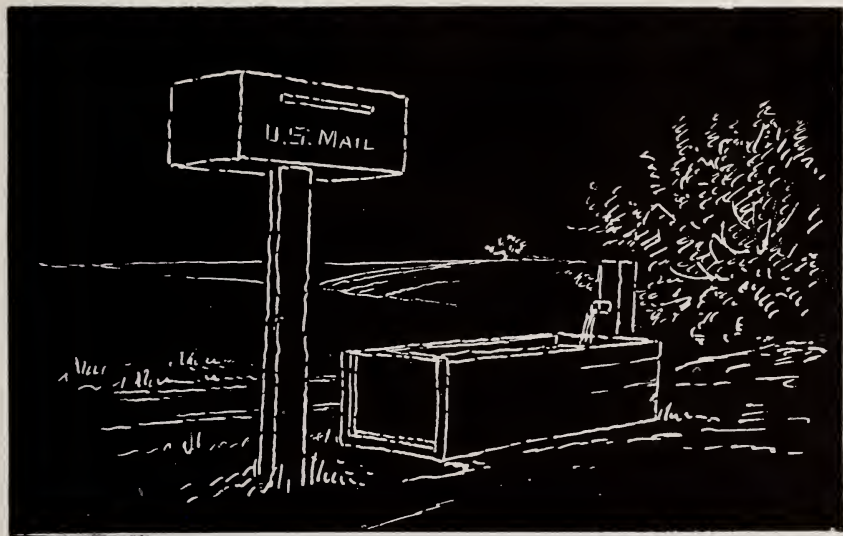


FIG. 16

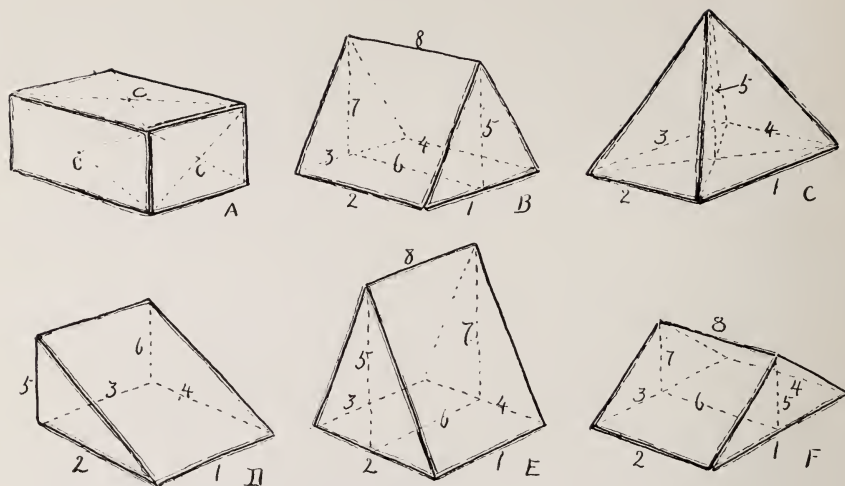


FIG. 17

To find the center of a rectangular face, draw diagonals as shown in rectangular prism A, Fig. 17. The points of intersection marked C are the perspective centers. These centers are useful in finding the middle of receding lines.

To draw a triangular prism, or a rectangular pyramid, first draw the base, then find the apexes and draw the sides.

B, C, D, E and F are drawn in the order of the numbered lines beginning with line 1.

D is a right triangular prism, E an acute triangular prism, and F an obtuse triangular prism. C is a rectangular pyramid.

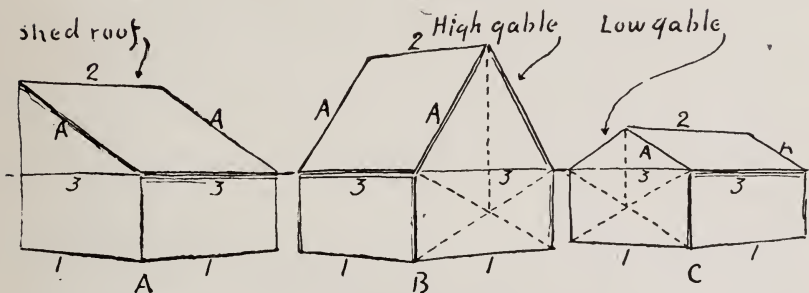
In B and F the triangular prism is left receding, and in D and E they are right receding.

Drill Exercises

Draw the prisms as follows: Draw the rectangular prism A, Fig. 17, below the eye and add to the top the triangular prisms as follows:

1. Add to the top of A, a right triangular prism.
2. Add to the top of A, an acute triangular prism.

3. Add to the top of A, an obtuse triangular prism.
4. Add to the top of A, a rectangular pyramid.
5. Draw a right triangular prism.
6. Draw an acute triangular prism.
7. Draw an obtuse triangular prism.
8. Draw a rectangular pyramid.



Lines marked 1 are receding lines below the level of the eye, hence slant upward.

Lines marked 2 are receding lines above the level of the eye, hence slant downward.

Lines marked 3 are receding lines on a level with the eye, hence are horizontal.

Lines marked AA are practically parallel.

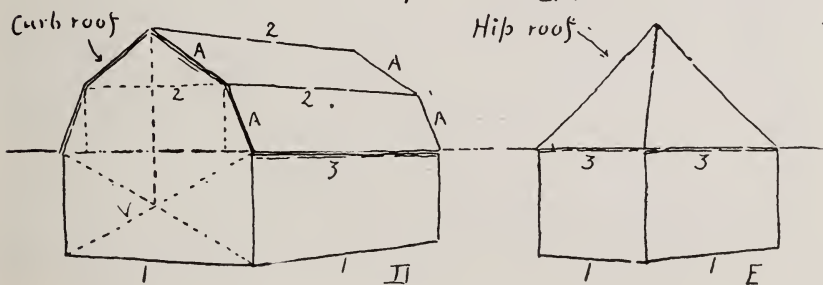


FIG. 18

Fig. 18 represents the ordinary roofs as seen on houses.

The shed roof is a right triangular prism on a rectangular prism.

The gable roofs are acute or obtuse triangular prisms placed on rectangular prisms.

The curb roof is a combination of obtuse triangular prisms and the hip roof is a rectangular pyramid placed on a rectangular prism.

All of these houses are drawn with the level of the eye or horizon line as dividing the main part of the house from the roof. Observe also that the receding lines below the eye slant upward and those above the eye slant downward, while those on a level with the eye are horizontal.

Make the houses in the drill exercises at least three inches long on paper and on the blackboard twenty inches long.

The house in Fig. 19 is the same as A, Fig. 18. The first drawing shows the mechanical elements, the second more of the picture elements.

In the following drill exercises only the mechanical elements are asked for, but it is well to follow these with the picture elements as shown in Fig. 19. These elements may be taken from real houses or copied from other drawings or pictures.

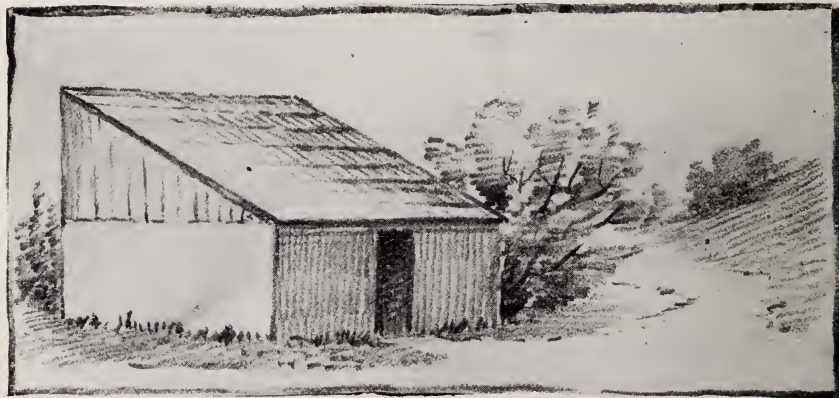


FIG. 19

Drill Exercises

1. Draw the shed A, Fig. 18, and turn it into the shed, Fig. 19.
2. Draw the shed with the right front changed to the left front.
3. Draw the house with the high gable.
4. Draw the house with the gable on the left front.
5. Draw the house with the low gable.
6. Draw the low gable on the right front face.
7. Draw the house with the curb roof.
8. Draw the house with the curb roof on the right front.
9. Draw the house with the hip roof.

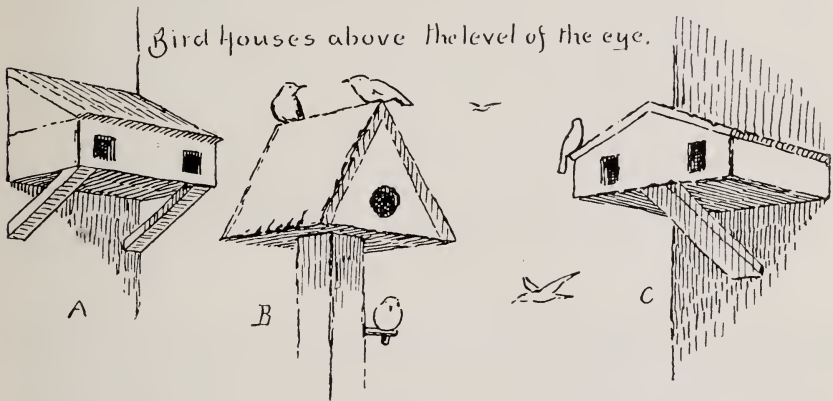


FIG. 20

Fig. 20 represents the roofs in the form of bird houses, all of which are drawn above the level of the eye, thus showing the bottom of the houses. A and C are in right receding and B in left receding directions.

Make the drawings large.

Drill Exercises

1. Draw a bird house A.
2. Draw bird house A with the roof slanting toward the left front face.
3. Draw the bird house B.
4. Draw the bird house B in a right receding direction.
5. Draw the bird house C.
6. Draw the bird house C with the bottom level with the eye.
7. Draw the bird house C with a curb roof.
8. Draw the bird house B with a hip roof.

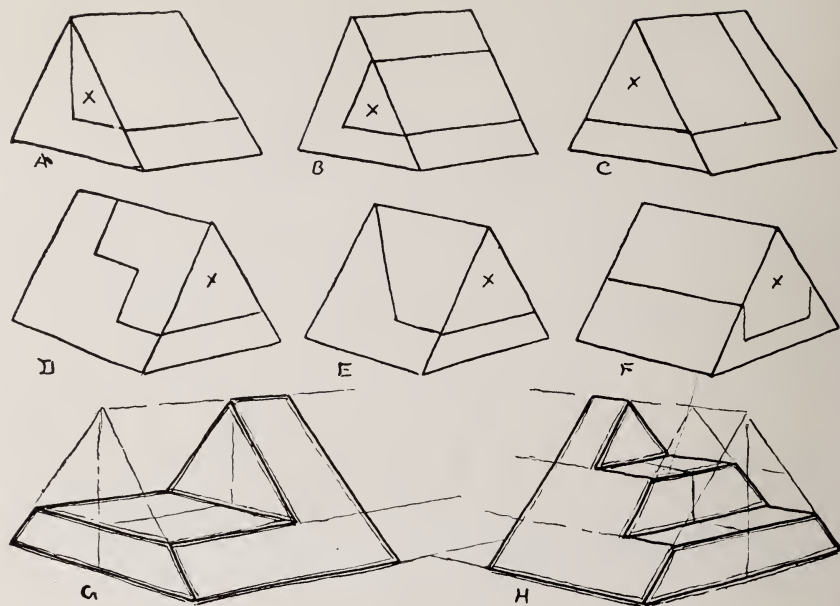


FIG. 21

In Fig. 21 there are six acute triangular prisms and on each is a part marked X. The part marked X is to be removed as indicated in the following exercises:

G represents the part removed from C, and H the part removed from D.

Drill Exercises

1. Draw triangular prism A and remove the part marked X.
2. Draw triangular prism B and remove the part marked X.
3. Draw triangular prism C and remove the part marked X.
4. Draw triangular prism D and remove the part marked X.
5. Draw triangular prism E and remove the part marked X.
6. Draw triangular prism F and remove the part marked X.



Fig. 22

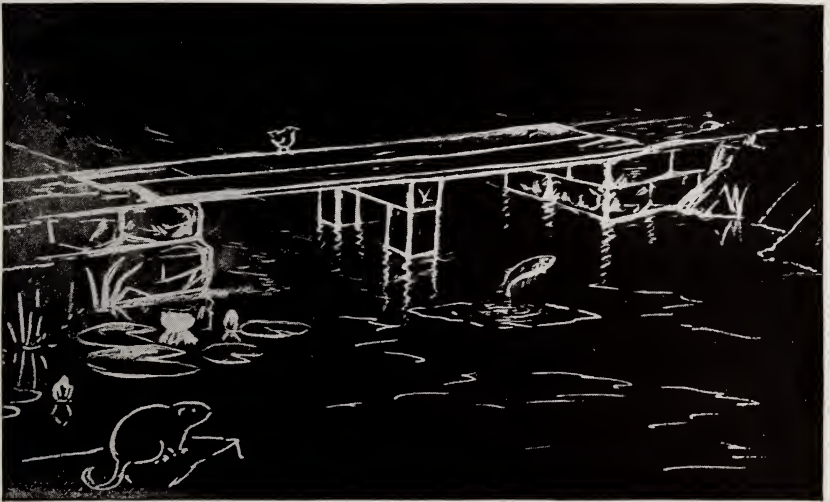


Fig. 23

THE DIRECTION OF FORM.

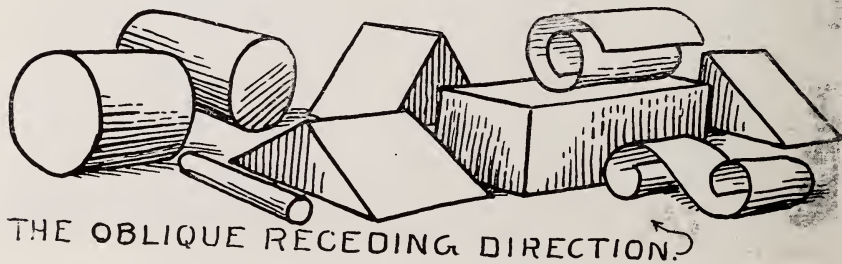
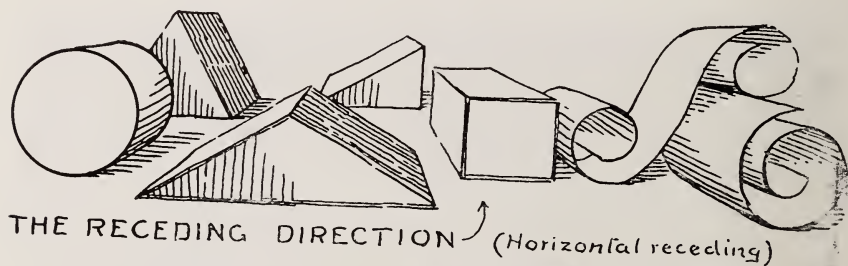
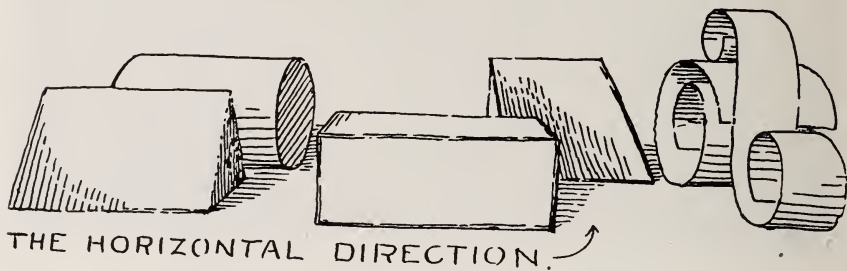
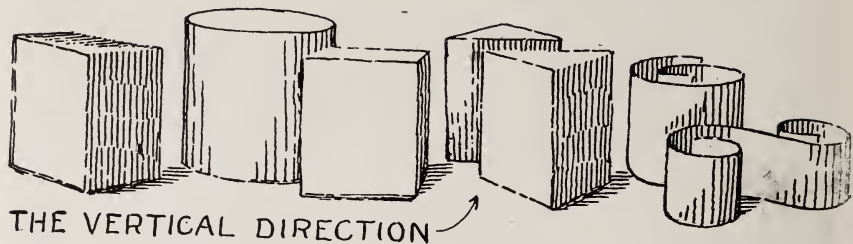


FIG. 24

The Direction of Form. There are four principal directions common to form. They are the vertical, the horizontal, the receding (horizontal receding) and the oblique receding. There is an oblique direction also, but it is omitted because it is used very little in drawing, and its place here would lead to confusion.

A knowledge of these directions is of a wonderful aid in form work. It gives the mind an orderly channel of thought that covers the whole range of the subject and nearly every condition that may arise.

In Fig. 24 are the principal measures of form as well as other examples arranged in each of these four directions. One can see at a glance that a knowledge of these directions will be of great use in arranging objects in various ways.

The cube and the sphere have no direction. The direction of the rectangular prism or the box form is in the direction of its longest dimension.

The oblique receding direction may be right receding, as shown by the nearer cylinder, and left receding, as shown by the farther cylinder.

Drill Exercises

1. Hold a pencil in a vertical direction. Horizontal receding. Right receding. Left receding.
2. Hold a book in a vertical direction. Horizontal receding. Right receding. Left receding.
3. Roll a piece of paper and place it on the desk in a vertical direction. A horizontal. A receding. Left receding. Right receding.
4. Draw a square prism in a right receding direction.
5. Draw a square prism in a left receding direction. In a right receding direction.
6. Draw a cylinder in four directions.
7. Draw an acute triangular prism in a receding direction. In a right receding direction. In a left receding direction.

The foot bridge, Fig. 23, is drawn in right receding direction. Draw it in a horizontal direction below the level of the eye. Use the center of vision.

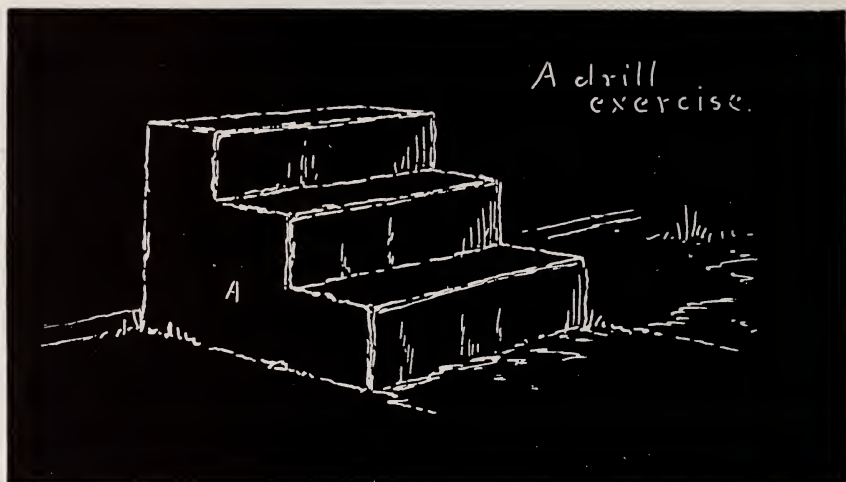
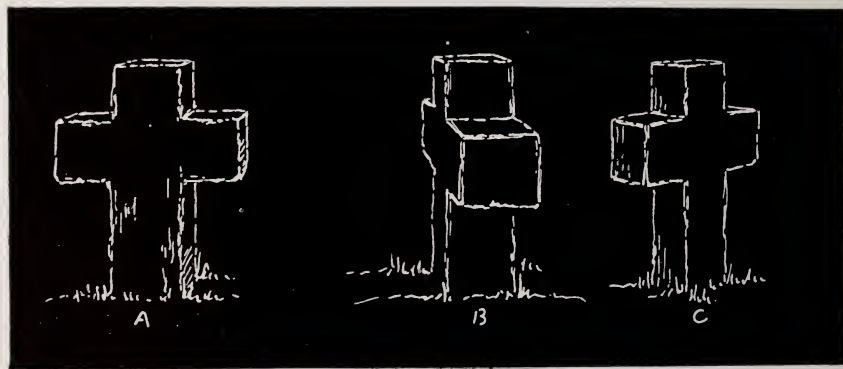


FIG. 25

Fig. 25 represents a step block drawn in oblique perspective with the steps facing the right front.

Drill Exercises

1. Draw the step block, Fig. 25.
2. Draw the step block in oblique perspective below the eye with the steps on the left front.
3. Draw the step block in parallel drawing below and at the left of the eye, with the steps in a receding direction.



In Fig. 26 are three crosses all drawn in vertical direction. Crosses A and B are in parallel drawing and C in oblique drawing.

The arms of cross A are horizontal, of cross B receding and of cross C right receding. All of the crosses are drawn below the level of the eye.

The cross is an excellent object to use for drill purposes.

Drill Exercises

1. Draw cross A. It is drawn below and at the left of the eye with the arms horizontal.
2. Draw cross B. It is drawn below and at the right of the eye with the arms receding.
3. Draw cross C. The arms are right receding.
4. Draw cross C with the arms left receding.
5. Draw cross C lying on the ground with the shaft left receding.
6. Draw cross C lying on the ground with the shaft right receding.

Crosses A and B may be drawn in any of the positions of parallel drawing and they may be drawn with the shaft vertical, horizontal, or receding.



FIG. 27

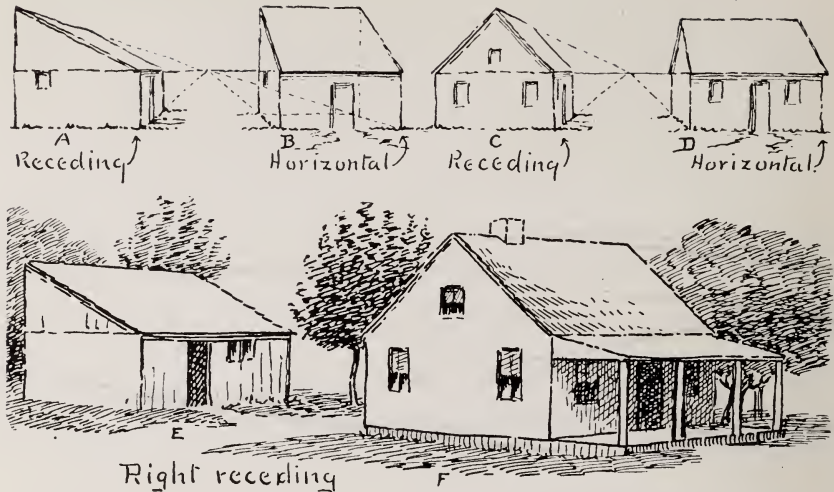


FIG. 28

The Direction of Houses may be determined by the roof. Shed A and house C are receding, shed B and house D are horizontal. Shed E and house F are right receding; so is the house in Fig. 27.

Drill Exercises

1. Draw shed A in a receding direction.
2. Draw shed A and a porch to the right face similar to F.
3. Draw shed A in a left receding direction.
4. Draw shed A in a right receding direction.
5. Draw house F.
6. Draw house F in a left receding direction.
7. Draw the house in Fig. 27.
8. Draw the log house, Fig. 22. It is drawn in a left receding direction.
9. Draw the log house in a right receding direction.

Review. Free hand drawing is divided into Flat Drawing—see Third Year Book; Parallel Drawing—see Fourth and Fifth Year Books, and Oblique Drawing—see Sixth Year Book.

Position. Flat drawing has one position — directly in front of the eye. See Fig. 3. Parallel drawing has nine positions—below, above, at the left and at the right of the eye, below and at the left, above and at the left, below and at the right, above and at the right, and in front of the eye. See Fourth Year Book.

Oblique drawing has three positions — below, above and on a level with the eye.

Direction. The principal directions in flat drawing are the vertical, horizontal and oblique.

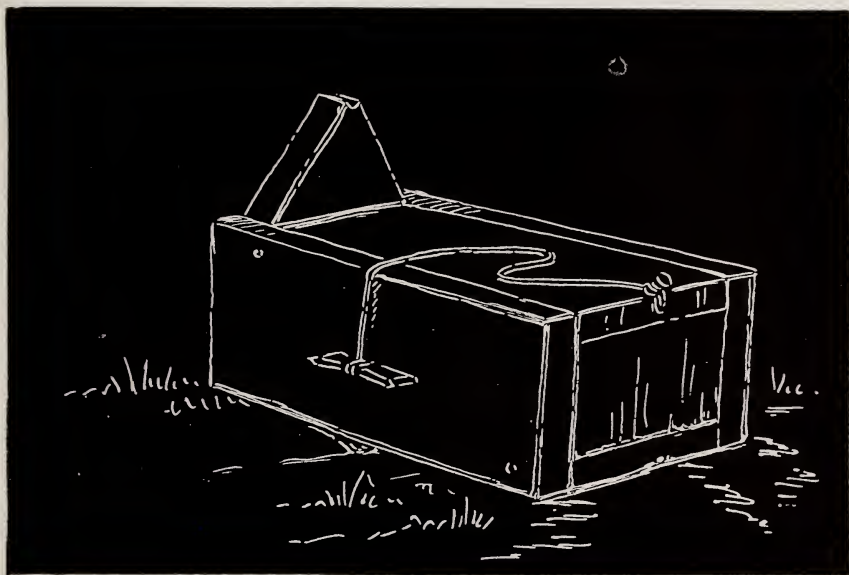
In parallel drawing the principal directions are vertical, horizontal and horizontal receding.

In oblique drawing the principal directions are vertical, right receding and left receding.

Form or Shape. The principal forms in all drawing are the rectangles, triangles and circles.

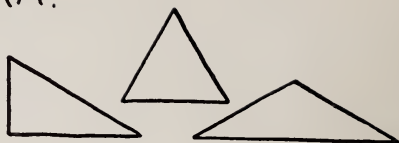
Proportion is common to all branches of drawing.

Oblique drawing is the most serviceable for ordinary illustration.

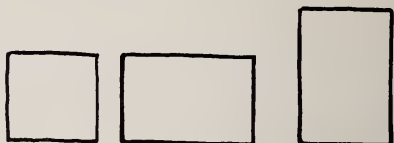


THE MEASURES OF FORM.

THE PRINCIPAL TRIANGLES
ARE THE RIGHT
THE ACUTE AND
THE OBTUSE.



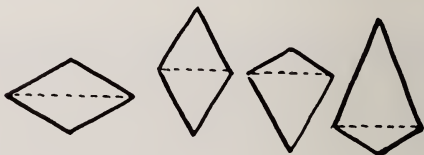
THE PRINCIPAL RECTANGLES
ARE THE SQUARE
THE HORIZONTAL
AND THE VERTICAL.



THE PRINCIPAL ROUND
FORMS ARE THE CIRCLE
THE ELLIPSE
AND THE OVAL.



THE TRIANGLES UNITED
MAKE THE DIAMOND
AND KITE FORMS.



THE TRIANGLES AND
RECTANGLES UNITED
MAKE HOUSE FORMS.



THE ROUND FORMS
AND RECTANGLES
UNITED MAKE HOUSE
FORMS.

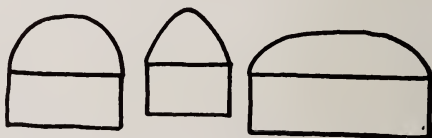
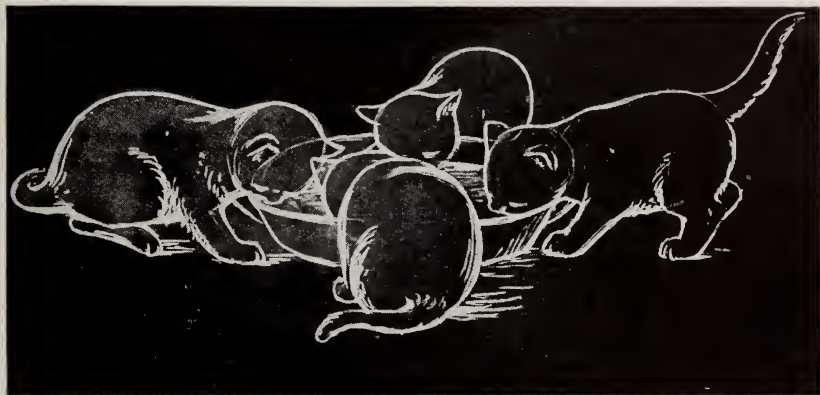


FIG. 29



DIRECTION

The Action of Animals

Action is revealed through the direction of lines.

It is the office of lines to show direction. The direction of each line has an expression in itself quite independent of the form of which it is a part. The leading expressions of lines are as follows:

Vertical lines express stillness, strength and life. These lines predominate in the standing position and are expressive of strength in buildings and both life and strength in animals, plants and trees.

The Horizontal lines express repose, weakness and death. These lines predominate in repose, and are the weak elements in buildings and in the growth of plants. Combined with vertical lines they give the action of sitting and in a landscape to stillness and repose.



PARALLEL LINES EXPRESS ORDER
 ANGULAR LINES, DISORDER.



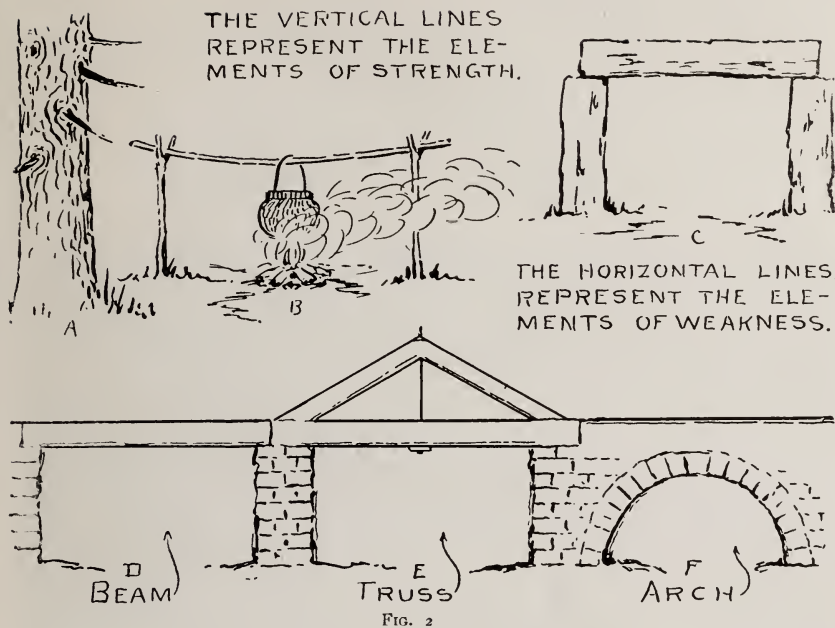
CURVED LINES
 EXPRESS GRACE.



VERTICAL LINES
 EXPRESS STILLNESS, HORIZONTAL
 LINES REPOSE AND OBLIQUE
 LINES MOVEMENT



FIG. 1



The vertical lines represent the elements of strength and the horizontal lines the elements of weakness. This is seen plainly in the art of building.

Building may be defined as the art of spanning a space.

Spaces are spanned by means of beams, trusses and arches of which there are many kinds of each. The elements of strength in buildings are the walls, piers, posts, and columns, which support the elements of weakness by means of beams, trusses, and arches, which in turn hold up the floors, ceilings, and roofs of houses, bridges and tunnels.

In Fig. 2 the vertical trunk of the tree suggests strength. In B, the vertical supports are the strength lines, and the horizontal pole is the line of weakness. This is carried out in building as shown in C. In D, E and F are the three principal ways of spanning spaces.



THE
 RUNNING
 GROUP

FIG. 3

The Oblique Line is commonly called the line of action because more than other lines it is used to express motion. Observe in Fig. 1 how the oblique lines of B and F express movement and in Fig. 3 the action of running is expressed largely by the oblique lines. Observe in Fig. 5 the lines are mostly vertical and the deer are standing still. As the oblique line approaches the vertical it increases in strength and as it approaches the horizontal it becomes more unstable. Balanced oblique lines as in the truss E, Fig. 2, are equivalent to vertical lines.



Fig. 4

The Curved lines are the lines of grace. They express graceful and harmonious action. Contrasted with angular lines they express opposite qualities. Curved lines express the graceful — angular lines the awkward. Curved lines express smoothness and ripeness, and angular lines roughness and decay.

Parallel Lines Express Order and Orderly Action. They are the lines of formality and regularity. An orderly arrangement of trees is when they are planted in rows.

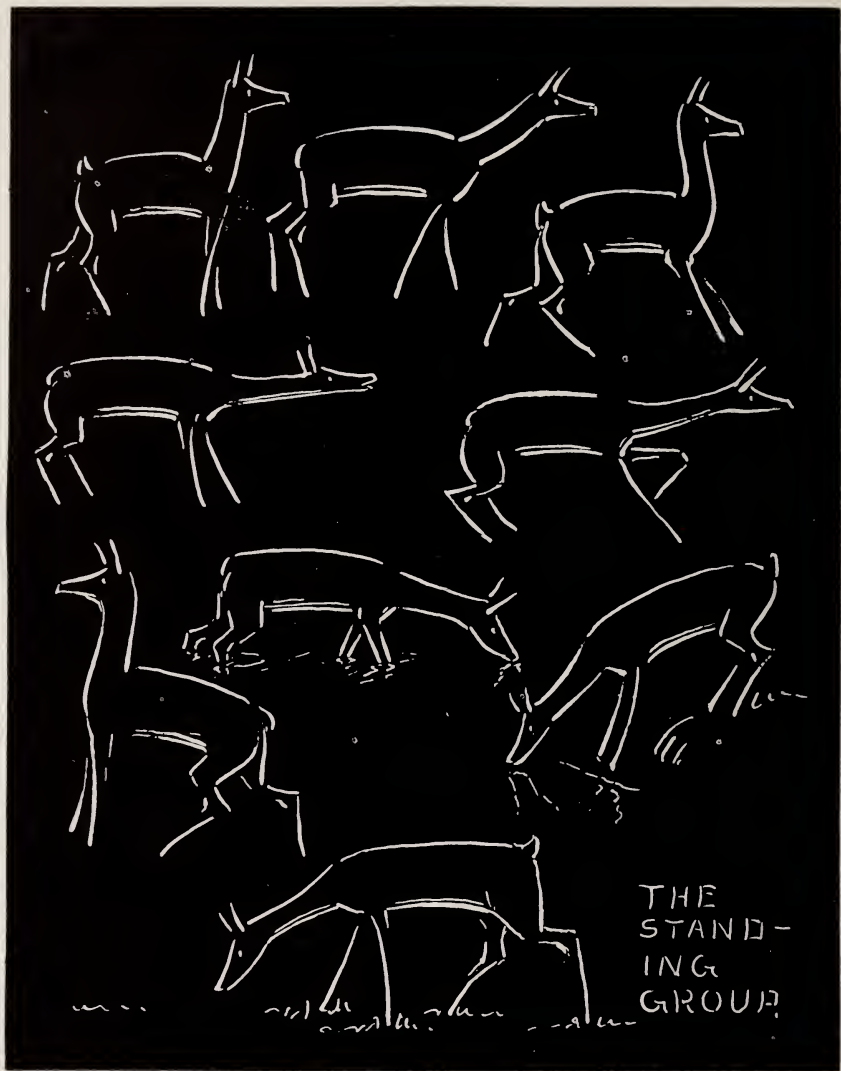


FIG. 5

Angular Lines are the Lines of Disorder and Confusion. Contrasted with parallel lines they are as a pile of brick or stone thrown on the ground and when laid in a wall.

Proportion. The straight lines may indicate strength, the curved lines grace and beauty, but only when they obey that indefinite law of proportion, without which strength becomes weakness and beauty disappears. Lack of proportion is an element of weakness.

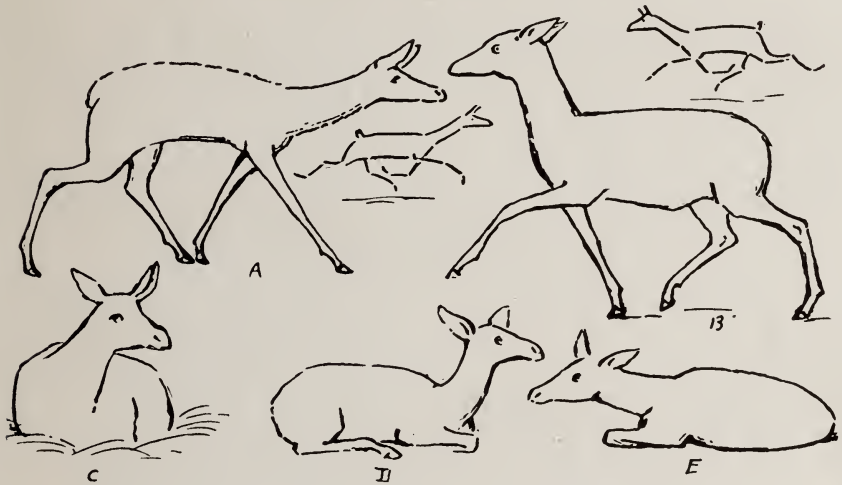


FIG. 6

The Expression of Lines is of great aid in expressing the action of animals; it reveals the principle and shows both how and why. Action is not a thing, it is not a part of the animal that expresses the action, but is a motion, and as such is revealed through the direction and expression of lines.

It is doubtful whether movement can be learned directly from the live animal. There is scarcely a movement so slow that the untrained eye can grasp it to the extent that it can be transferred to paper in picture form. A better way is to learn the action through the copy or drawings made by others. The drawing contains both the idea and how to

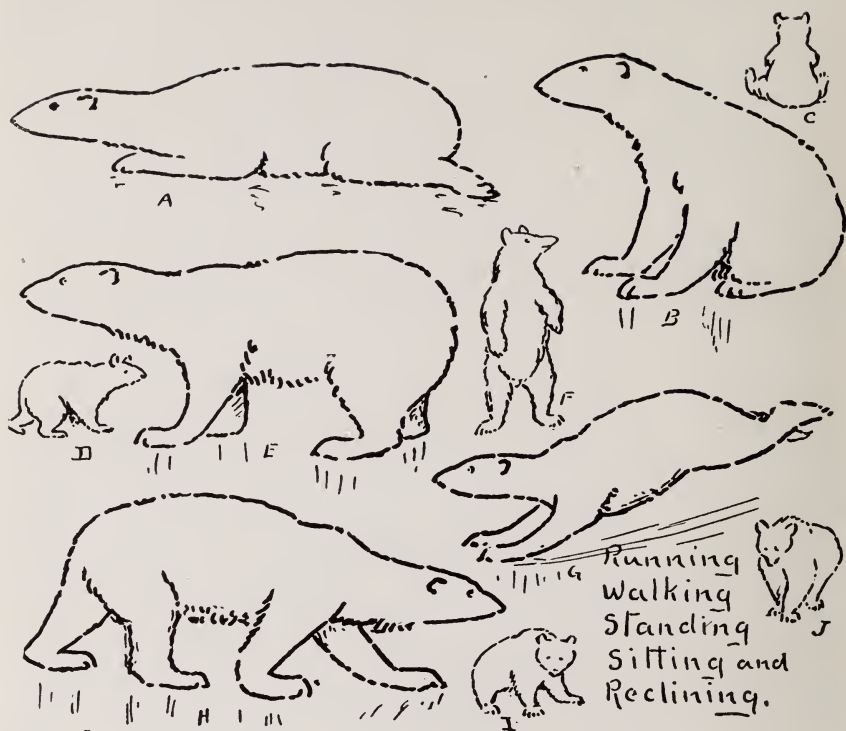


FIG. 7

represent the idea; the animal represents the idea only and has no power to show how to represent itself on a flat surface.

An excellent plan of learning the action of animals is the same as the learning of the action of birds; see *Direction, Fifth Year Book*. It is as follows:

First — Learn how to express the action through the copy; that is, learn the method, the principle, the mechanical process. Then:

Second — Drill. Use the action thus learned in memory and im-

aginative work until it can be represented with some degree of facility, and then:

Third — Use direct observation, to verify, correct, and perfect the action until it can be represented with both accuracy and facility.

These three steps need not be wide apart. They merge together at every point and all three steps may even occur in the same lesson.

It is well to represent a definite action and to clearly understand the idea that is being pictured. Use the expression of lines as an aid in this work.

When drawing the deer given below in the drill exercises, think of the idea you are representing. Ask yourself these questions: What am I representing? What lines should predominate in this action?

Draw the large part first. This is the body. Sketch in with light lines as shown in Fig. 12 and then finish with heavier. Make the drawings about three inches long on paper and twelve to eighteen inches on the blackboard.

Drill Exercises

1. Represent a deer running.
2. Represent a deer walking.
3. Represent a deer feeding.
4. Represent a deer drinking.
5. Represent a deer walking up hill.
6. Represent a deer walking down hill.
7. Represent a deer swimming.
8. Represent a deer resting.
9. Represent a deer jumping.
10. Represent a deer climbing a steep hill.



FIG. 8

Groups of Action. There are five great groups of action which in a general way include the action of animals. They are: running, walking, standing, sitting and reclining. The oblique lines predominate in the running and walking groups, the vertical lines in the standing group, the horizontal lines in the reclining group, and the vertical and horizontal lines in the sitting group, or what is equivalent to these lines—balanced oblique lines.

The principle in the construction of animals is in general the same. The difference is in the size, proportion and minor details. For example, examine the hind leg of a cat and it will be found very similar to that of a mouse, squirrel, dog, sheep, cow or horse. The difference in principle and shape is so small that the learning of one is a great aid in drawing the others. The same may be said of the drawing of the other parts of animals. So true is this that the drawing of one animal greatly aids in the drawing of all animals.

The bears in Fig. 7 represent the five principal groups of action. Make drawings about four inches long on paper and eighteen inches on the blackboard.

Drill Exercises

1. Represent a bear reclining.
2. Represent a bear sitting.
3. Represent a bear standing.
4. Represent a bear walking.
5. Represent a bear running.
6. Represent a bear swimming.

Action or movement is largely impersonal, that is, it is a movement that may be learned and then applied to various animals. For example, the action of running may be learned and then applied to any object or thing. In Fig. 9, the same action of standing and looking has been applied to widely different animals. So an action may be learned, and when once learned may be applied to any animal. It is the character of the action that differs. The character is individual.

Drill Exercises

1. Learn the action of standing as shown by the deer A in Fig. 5 and apply it to a dog. A rabbit. A bear. A pig.
2. Learn the action of running as shown by the deer A in Fig. 3 and apply it to a dog. A cat. A bear.
3. Learn the action of walking as shown by deer A in Fig. 6 and apply it to a bear. A dog. A cat.
4. Learn the action of sitting as shown by the bear B in Fig. 7 and apply it to a dog. A cat. A rabbit.

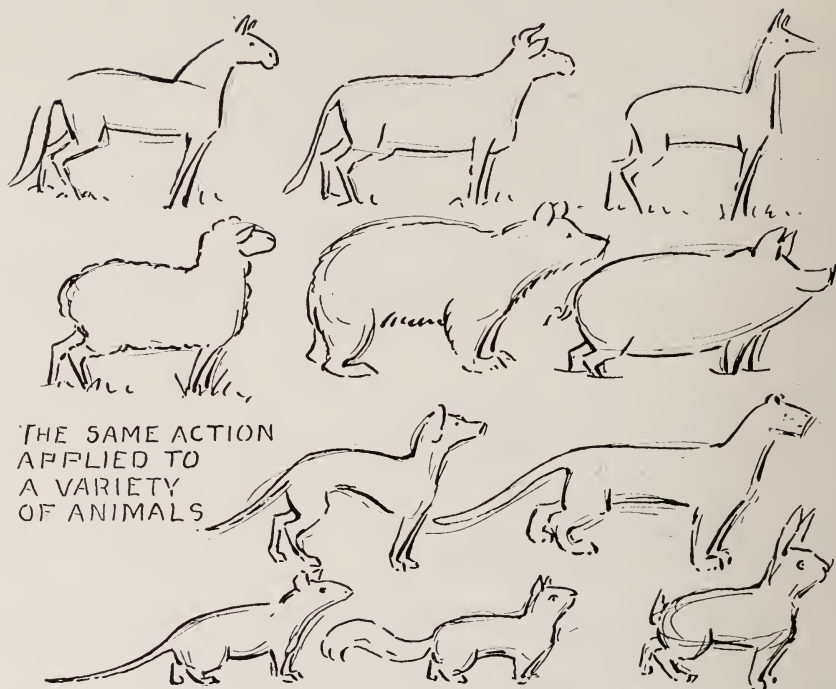


FIG. 9

Character and action are often confused. They are not the same. Character belongs to the individual, while action is common to all. For example, the principle of running is the same in all animals, but the character of the run differs with each animal. The action is the same, yet we recognize the run of a squirrel, a rabbit, a cat, a dog, and a cow, at a glance. Character and likeness are similar and are the most interesting elements of an animal. To represent the character correctly is to represent the highest element of the individual. It is higher than the mechanical elements. In Fig. 10 the character lines are as nearly as possible in their most simple form. They can be learned by drawing them.



FIG. 10

Drill Exercises

1. Represent a cat washing her body.
2. Represent a cat washing her paw.
3. Represent a cat washing her face.
4. Memorize cat E and draw it on the blackboard.
5. Memorize cat F and draw it on the blackboard.
6. Memorize cat G and draw it on the blackboard.
7. Represent a cat in the act of jumping.
8. Represent a cat watching at a mouse hole.

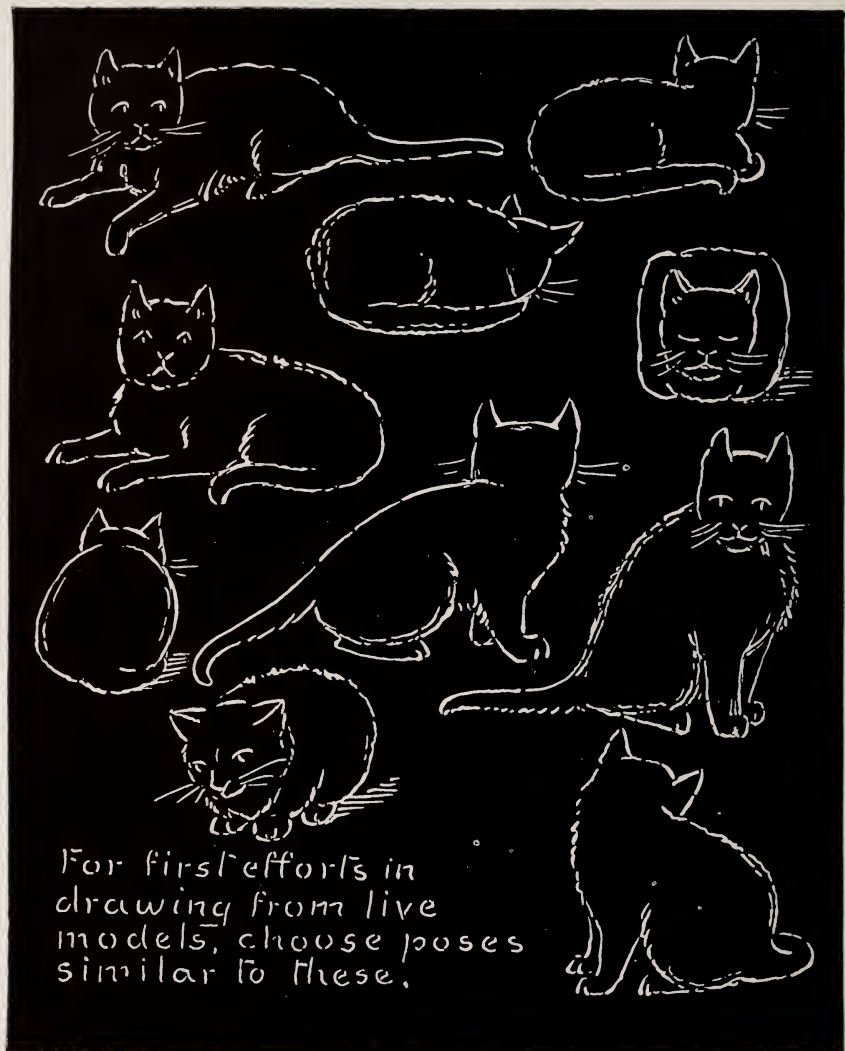


FIG. 11

The most common actions of the cat are standing, walking, sitting, running, sleeping, eating, drinking, creeping, jumping, watching, mew-ing, climbing, listening, washing and playing.

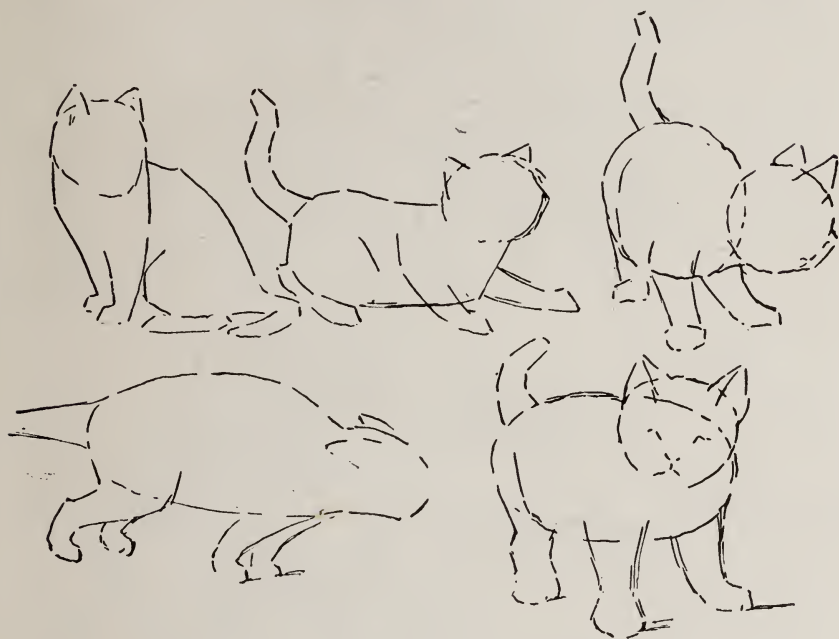
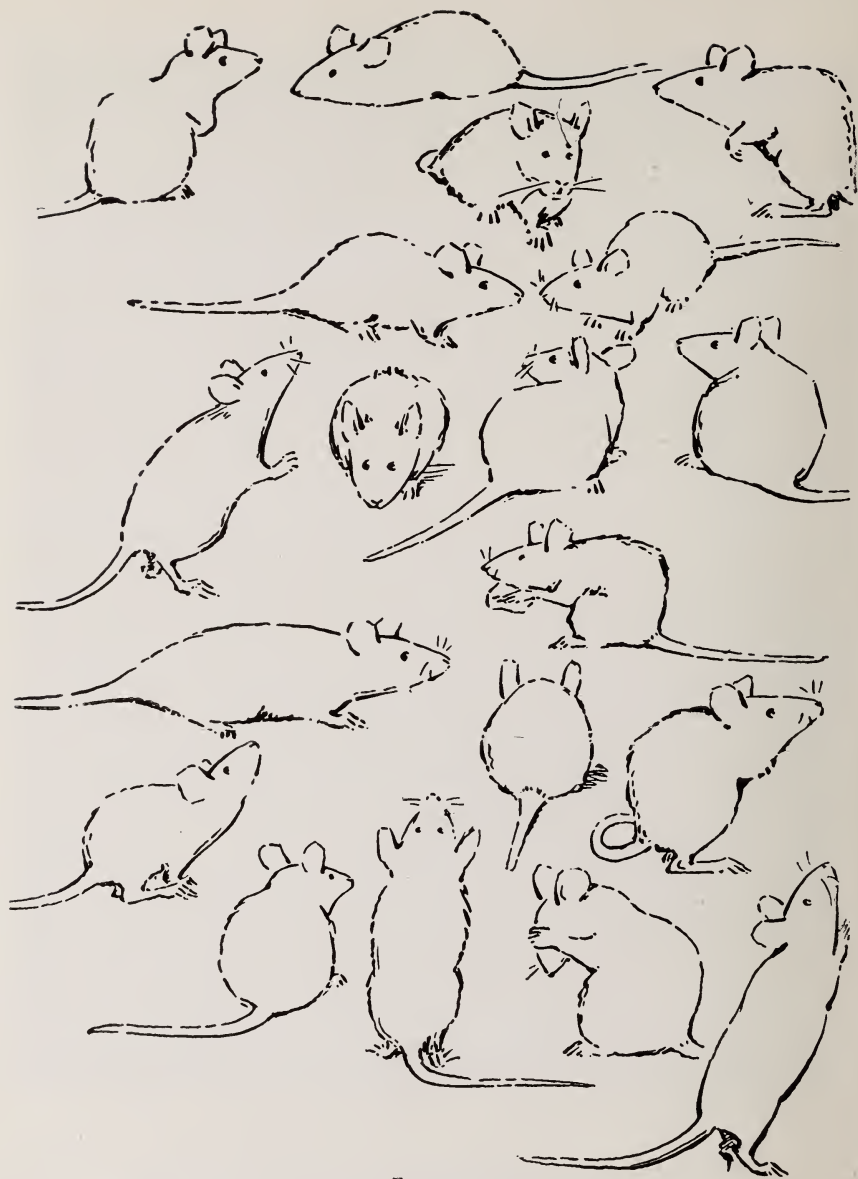


FIG. 12

Drawing the Real Animal. After some progress has been made in the study of animals from the copy, and some knowledge of the position and proportion of the parts, then some of the easier poses of familiar animals may be drawn. The cat and the dog are the most available animals, and poses similar to those in Fig. 11, that contain little movement, should be the first ones attempted. The sitting and reclining groups are the ones that will give the best results for first efforts.

Mark in the drawing with light lines as shown in Fig. 12, and then finish leisurely according to the time given by the animal posing.



Make special studies of the different parts. If of the cat, make a drawing of the ear, the eye wide open, and partly closed, the paw with the claws out and with them in. Draw the front leg and the hind leg, the head, side view and front view. Make quick drawings to gain the spirit of the action. Draw the large parts and the long lines of action before the shorter lines and the details.

The mice in Fig. 13 were drawn from a single mouse in a glass cage. He was a lively little fellow and constantly changed his pose. The original sketches were not as complete as these shown in the drawing. There was only time to sketch a few lines here and there as he ran about, but out of the many sketches and studies made those in Fig. 13 were drawn.



FIG. 14

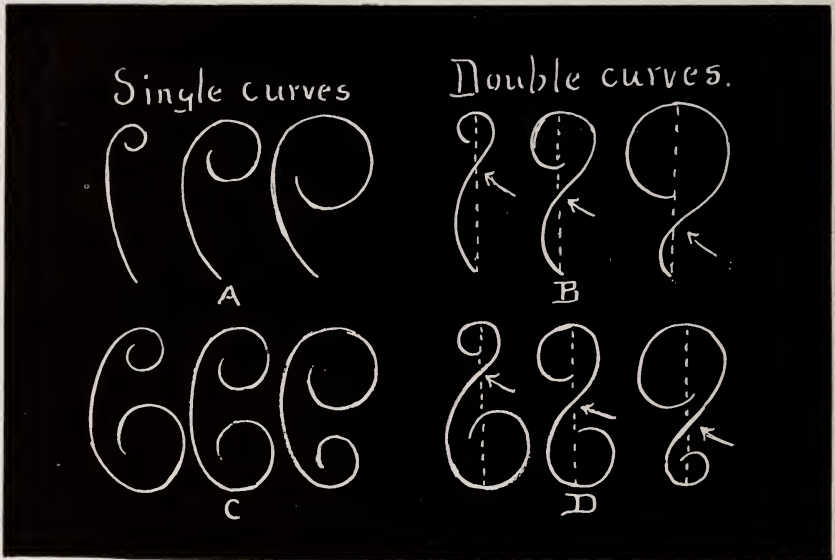


FIG. 15

DECORATIVE DESIGN

Single and Double Curves. Curves are of two kinds, single and double, A and B, Fig. 15.

A represents three single curves with small, medium and large whorls, and C represents the same in double form, B represents three double curves with small, medium and large whorls, and D represents the same in double form. Observe in the double curves B and D that the reverse is above the center in the small curves, at the center in the medium curves and below the center in the large curves, as indicated by the arrow.

These single and double curve elements may be and are used as units, especially in what is called bent iron work, as shown in Fig. 16.

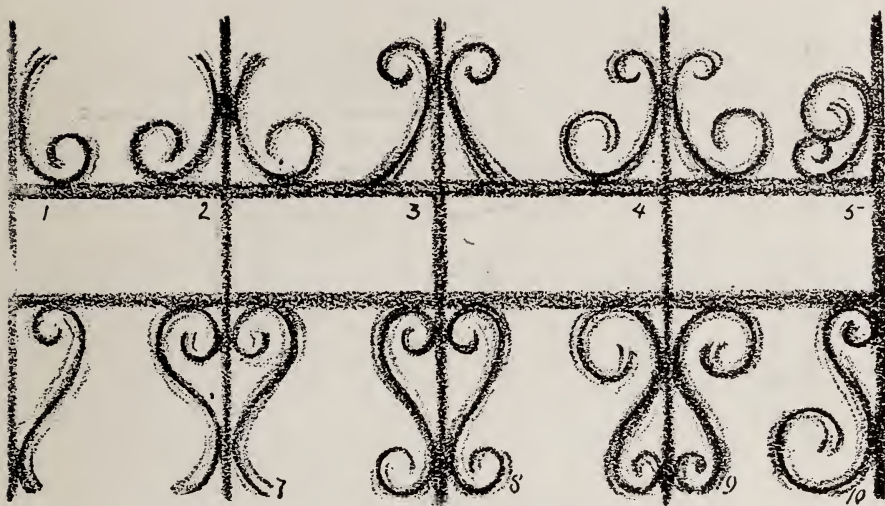


FIG. 16

Fig. 16 represents bent iron work in which these single and double curves are used as units. In the upper horizontal row the single curve is used as a unit and in the second row the double curve is the unit. Examples of this work are seen in iron fences, the open work that surrounds office inclosures, elevator shafts, and like spaces. There is practically no end to the combinations that may be made with these units.

These single and double curves have often been called the test of the designer. To turn these curves without a discord in the line, is certainly an achievement worthy of study and practice. It is well to practice these curves on the blackboard and on paper until the swing of precision is gained and these curves can be made with skill and accuracy. Then they become a pleasure and a source of never-ending interest, and a basis for graceful movement and action.

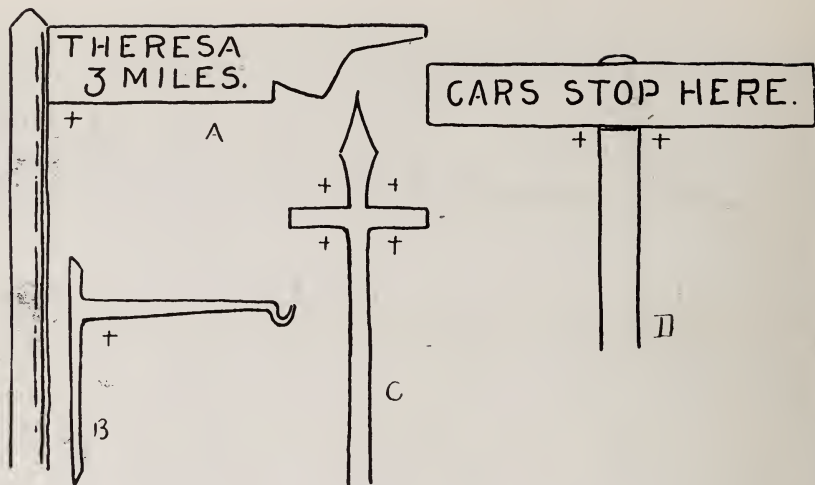


FIG. 17

Fig. 17 represents objects to which the single and double curves as units may be applied. The units are applied at the places marked with an X. A and D are sign posts, B is a plant or bird hook, and C a cross which may be used as a termination of a banner pole.

Drill Exercises

1. Decorate the sign A at X with a single curve unit.
2. Decorate A with a double curve unit.
3. Decorate the sign D at X with single curve units.
4. Decorate the sign D at X with double curve units.
5. Decorate the hanging hook B at X with single curve units.
6. Decorate the hanging hook B at X with double curve units.
7. Decorate the cross C at X with single curve units.
8. Decorate the cross C at X with double curve units.
9. Decorate the cross C with single curve units above and double curve units below.
10. Decorate the hook B with a single curve unit above and a double curve unit below.

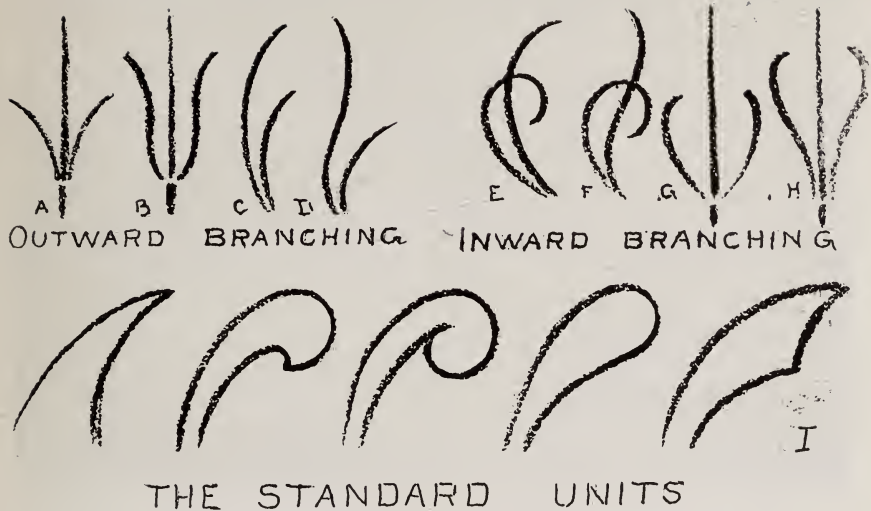


FIG. 18

The Branching of Lines. Branching is of two kinds — outward and inward.

Outward branching is the branch curving outward away from the main stem as shown in A, B, C and D, Fig. 18. A in Fig. 19 is an excellent example.

Inward branching is the branch curving inward toward the main stem as shown in E, F, G, and H, and in B, Fig. 19.

I represents the Standard Units. These units may be drawn in inward and outward branching as shown in the two handed work of the Fourth Year Book.

These standard units are the basic form elements in decorative design. The elements of the Egyptian lotus, the acanthus leaf, the buds, leaves and flowers of plants, and the scrolls in shells are all included in these standard units, and are used in forming such famous ornaments as the anthemion, wave scrolls, the many forms of the fleur-de-lis, and the elements of Egyptian, Greek and Moorish decorative art.



FIG. 19

Both the curve and branching elements are fundamental in character and are the basis of an indefinite number of combinations running through the entire subject of decorative design. To draw these curves and branches with facility, requires much practice and persistent effort, but so important is it that these elements be acquired, that almost any amount of application and hard work is justifiable in their acquisition. The designer must acquire the ability to draw these curves and branches with ease, freedom and skill.

In Fig. 19 observe in C that the standard unit called the whorl is used at the termination of the branches or scrolls. Any of the standard units may be used for these terminations as shown in D, E, F, G and H.

Drill Exercises

1. Practice drawing the curve A, Fig. 19.
2. Practice drawing the curve B, Fig. 19.
3. Practice drawing the curve, C Fig. 19.
4. Practice drawing the curve D, Fig. 19.

5. Practice drawing the curve E, Fig. 19.
6. Practice drawing the curve F, Fig. 19.
7. Practice drawing the curve G, Fig. 19.
8. Practice drawing the curve H, Fig. 19.



FIG. 20

Fig. 20 represents bent iron work in the form of bracket hooks. They are for the purpose of suspending objects similar to hanging baskets, bird cages, and plants. They are excellent forms for the application of the single and double curves in inward and outward branching.

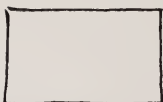
Drill Exercises

1. Draw bracket hook A, and then draw a similar one.
2. Draw bracket hook B. Draw a similar one.
3. Draw bracket hook C. Draw a similar one.
4. Draw bracket hook D. Draw a similar one.
5. Draw bracket hook E. Draw a similar one.
6. Draw bracket hook F. Draw a similar one.
7. Draw bracket hook G. Draw a similar one.
8. Draw bracket hook H. Draw a similar one.

CONVENTIONAL FORMS



Triangle



Rectangle



Circle



Ellipse



Oval

THE CHIEF MEASURES OF FORM



Bean



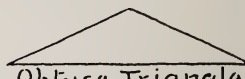
Crescent



Umbrella



Acute Tri.



Obtuse Triangle



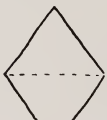
Palette



Circle



Lens



Diamond



Kite



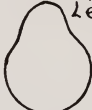
Hexagon



Oval



Balloon



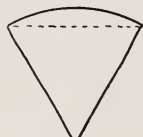
Pear

THE TRIANGULAR GROUP



Star

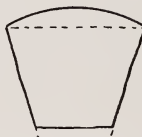
THE ROUND GROUP.



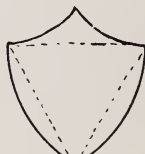
Fan



Shield



Keystone



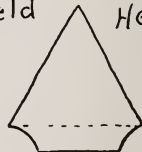
Heart



Trefoil.



Acorn



Arrow

CIRCLE and TRIANGLE COMBINED.

Conventional Form. Beauty of form depends on pleasing proportion. Fine lines will not produce fine proportion; neither will measurement. Proportion finds its basis in your mind, and depends on your judgment and taste. Proportion is acquired by intelligent and persistent effort. The proportion of the pitchers, jugs, vases and teapots in this lesson depend on the pleasing relation or proportion between the different parts as they are fitted together.

In designing, the most useful forms are the triangle, the rectangle, the circle, the ellipse and oval. These are enough for all practical purposes. But, in addition, there are a few conventional forms that are generally recognized, and which it is well to know. Fig. 21 represents the principal conventional forms. Of these forms or shapes the triangles, rectangles, circles, ellipses, and ovals are known as geometrical forms. The hexagon, which may be considered a double triangle, is a geometrical form.



The conventional forms are arranged in groups for convenience in memorizing them. All of these forms may be more or less modified, as shown in Fig. 22.


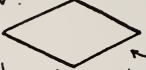

Most natural forms may be conventionalized by making them regular and symmetrical.



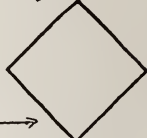
The five chief measures of form, the triangles, the rectangles, the circles, the ellipses, and the ovals, should be thoroughly learned. It is not necessary to learn the remaining conventional forms, except to become generally acquainted with them.



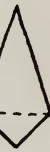
These forms are servants of the mind. They say to the designer: You can make your design triangular, rectangular, circular, elliptical or oval, or that you may base it on any of the conventional forms. They are conventional forms of thought, aids to expression, centers around which ideas may form. The only way to learn these forms is to use them.

Form may be modified as follows:

In size, — made smaller →  or larger → 

In direction, — made vertical, →  horizontal or oblique →  → 

In width, made narrow →  medium — →  or broad — → 

In height, by dividing into upper middle or lower divisions →  →  → 






In outline, — by changing to inward and outward curves.     

FIG. 22

Modifying Form

Form or shape may be modified:

In size — made large or small.

In direction — made vertical, horizontal and oblique.

In width — made narrow, medium and broad.

In height — divided into upper, middle and lower divisions.

In outline — by substituting the various straight and curved lines.

Drill Exercises

The number at the end of each exercise indicates the number of ways the form is to be modified.

1. Modify a circle in size (2).
2. Modify a triangle in width (3).
3. Modify a rectangle in direction (3).
4. Modify a diamond in width (3).
5. Modify a kite in outline (5).
6. Modify a lens in direction (3).
7. Modify the umbrella in width (3).
8. Modify the diamond in two directions—vertical and horizontal (2).
9. Modify the balloon in width to narrow, medium and broad (3).
10. Modify the crescent in width (2).
11. Modify the kite in width (2).
12. Modify the keystone in width (2).
13. Modify the shield in width (2).
14. Modify the arrow in width (2).
15. Modify the diamond in height — divide into upper, middle and lower divisions (3).
16. Modify the arrow in height (3).
17. Modify the acorn in height (2).
18. Modify the acute triangle in outline (5).
19. Modify the obtuse triangle in outline (3).
20. Modify the diamond in outline (4).
21. Modify the kite in outline (5).
22. Draw a circle and modify it so as to make it into an ellipse, an oval, a pear, a balloon, a crescent, a bean and an umbrella.

Fig. 27 shows a practical application of the conventional forms in designing pitchers. The drawings are made not only to show the modification of units as shown in Fig. 22, but to show the manner of work. They will bear close study, as showing the mechanical methods of using a measure of form or the conventional forms.

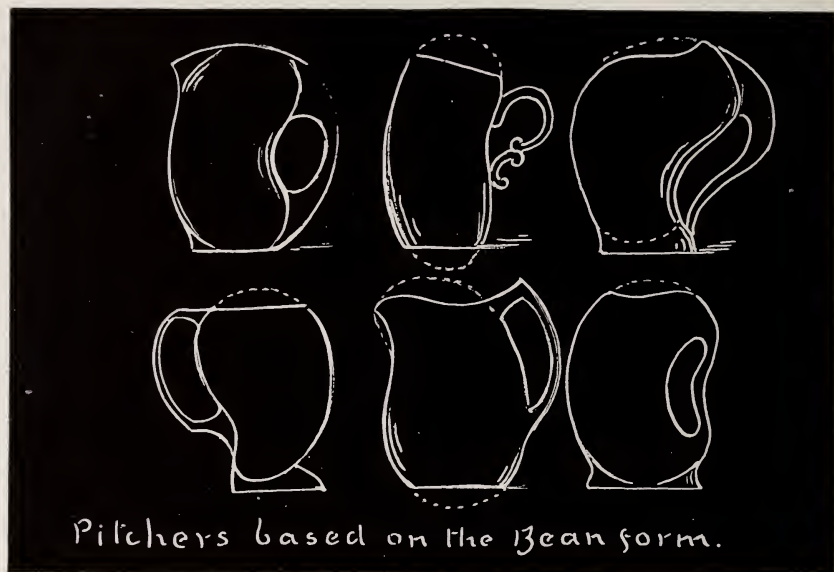


FIG. 23

Using the Conventional Forms

When using these figures as a basis of design, care should be taken that they are not a hindrance instead of a help. They may be a hindrance if used as unalterable measures of form and not as suggestive aids to the mind. These forms are not patterns, but helps. Because the triangle is used as a start, is no reason why the finished product shall be like a triangle, or even triangular in shape. It is not necessary to copy a figure exactly in order to use it.

Fig. 23 represents several mugs in which the bean form was used as the general shape. This form has been followed quite closely; still it can be seen that the designer used it as a mere tool to work out his ideas — as a suggestive aid to the mind.

This is the way the forms are used, not as patterns so much as something tangible on which to build.

How to Design an Object

Find out its use.

Determine its parts.

Determine its size and form.

Associate the parts together harmoniously.

If desirable, decorate the object.

For example, the object is a teapot.

What is a teapot? It is a vessel to conveniently hold and handle a hot liquid. Then it must possess:

A bowl to contain the liquid.

A lid or cover to prevent it from cooling rapidly.

A nose from which to pour the liquid.

A handle with which to hold the vessel.

A standard or base on which the vessel may rest.

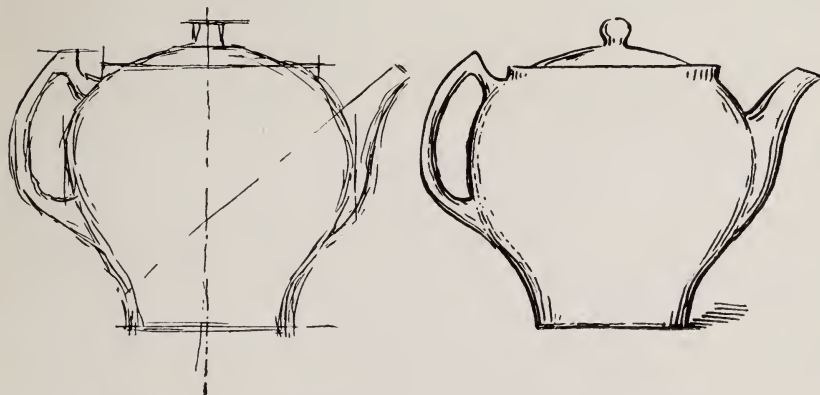


FIG. 24

These are the parts. Then our task is to construct a vessel to hold a hot liquid, composed of a bowl, lid, handle, nose and base, so combined as to present a pleasing appearance and be of practical use. The process in general is as follows:

The bowl, being the largest, most central, and most important part, should receive the first attention. After looking over the various forms, we choose, say the balloon, and sketch this form with light lines and of the size desired.

JUGS AND TEAPOTS

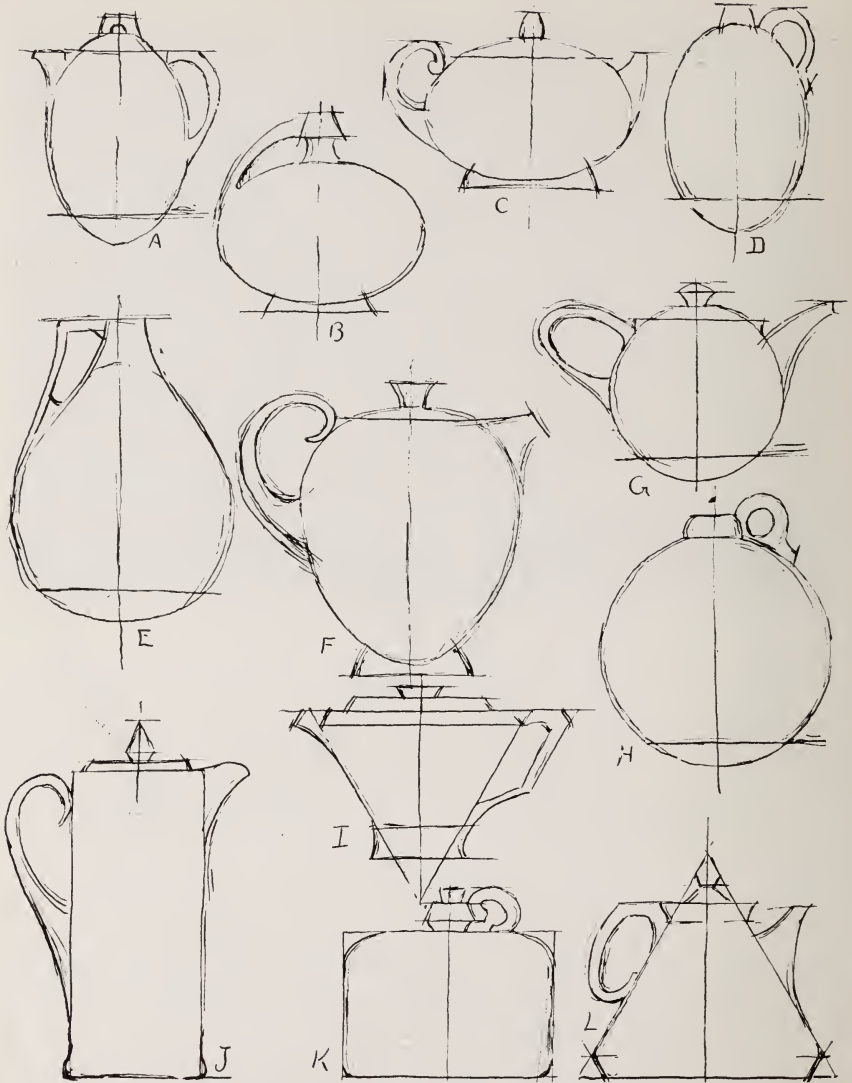


FIG. 25

To this balloon shaped bowl add with light sketch lines a lid, a handle and a nose, and as each are added, hold your drawing away at arms length, and see if the proportion is pleasing; to see if the handle is too large, or too small, to see if the nose is too light or too heavy, and if the whole is pleasing.

The vessel must be pleasing and adapted to the purpose for which it was designed.

Designing Jugs and Teapots. In Fig. 25 there are a number of jugs and teapots. They are based on the five fundamental forms. The aim is to show how the vessels are marked out before finishing, as in Fig. 26.

Fig. 27 also shows the manner of designing vessels. The aim of the drawings are to show the method of work. In both Figs. 25 and 27 the measure forms are followed more closely than is done in actual practice.

The type form is first chosen and drawn. Then the middle vertical line is drawn and then the parts added, all with light lines and then finished with heavier lines.

Drill Exercises

1. Design a teapot with a round bowl.
2. Design a teapot with an oval bowl.
3. Design a teapot with a bowl like a horizontal ellipse.
4. Design a teapot with a bowl like a vertical ellipse.
5. Design a teapot with a bowl like a vertical rectangle.
6. Design a teapot with a bowl like a horizontal rectangle.
7. Design a teapot with a bowl like a triangle.

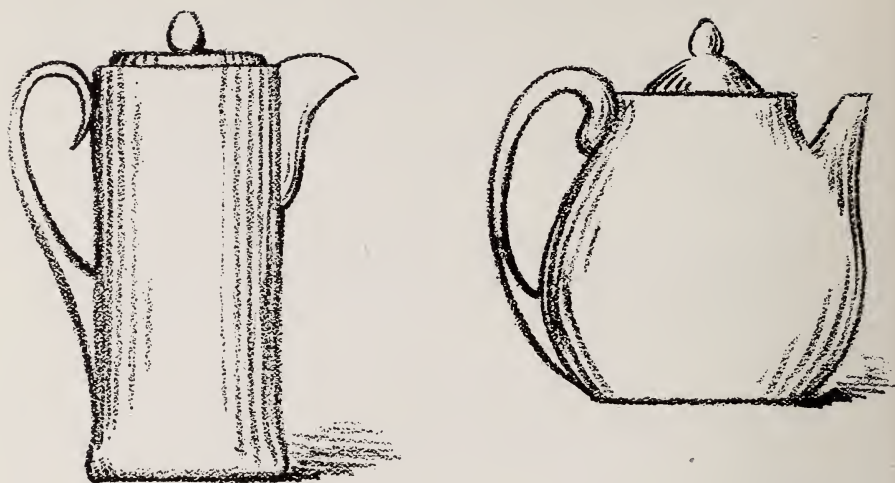
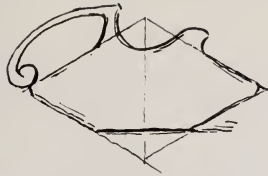


FIG. 26

Drill Exercises

1. Design a teapot, cream pitcher, sugar-bowl and teacup, all similar to J, Fig. 26.
2. Design a round jug.
3. Design a rectangular jug.
4. Design a triangular jug.
5. Design an elliptical jug.
6. Design an oval jug.
7. Design a keystone shaped jug.
8. Design an arrow shaped jug.
9. Design a jug with a bowl like an arrow.
10. Design a jug with a bowl like a balloon.
11. Design a jug with a bowl like a lens.
12. Design a jug with a bowl like a pear.

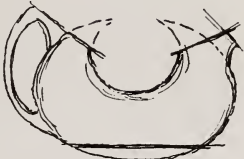
VERTICAL
HORIZON-
TAL AND
OBLIQUE
DIRECTIONS.



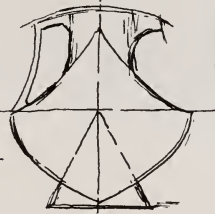
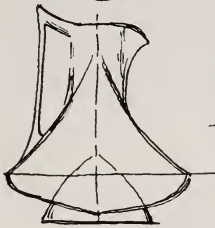
DIAMOND SHAPES

CRESCENT SHAPES

NARROW,
MEDIUM
AND BROAD
WIDTHS



UPPER
MIDDLE
AND LOWER
DIVISIONS.



SHIELD SHAPES

KITE SHAPES

INWARD
AND
OUTWARD
CURVES.

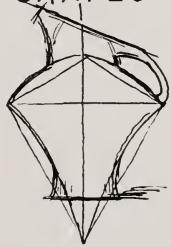
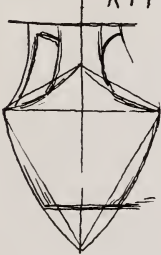


FIG. 27



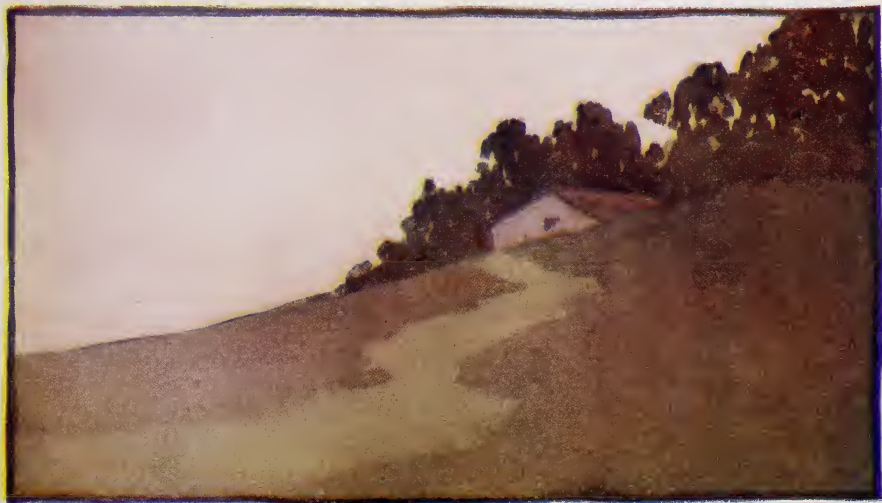
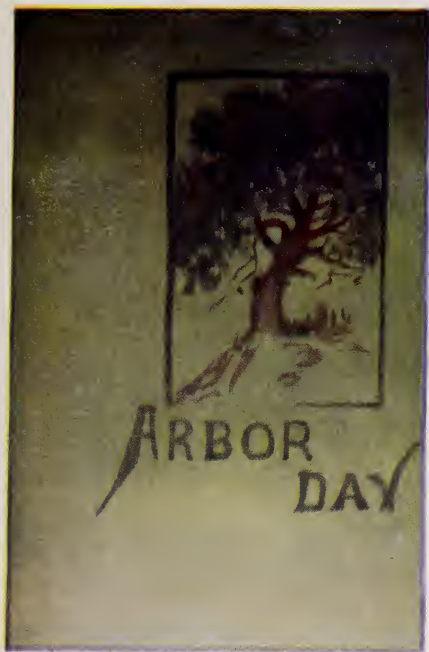
FIG. 1

COLOR

General Terms and Definitions

The standard colors are pure colors which by common consent are accepted as types. They are red, orange, yellow, green, blue and violet, and are based on the solar spectrum. Of these colors, red, yellow and blue are called primary colors, and orange, green and violet, secondary colors.

Red and orange are called warm colors and blue and violet cold colors. Colors tending toward red and orange are called warm, and those tending toward blue and violet, cold. Grays tinted with warm color are called warm grays, and those tinted with cold color, cold grays.



Luminous colors are those tending toward yellow. Yellow is the most luminous color, and represents more than any other color the element light.

A positive color is a decided or striking color, like red, yellow or violet. A passive color is a quiet color, like gray.

Green is a neutral color, intermediate between warm and luminous colors, red, orange and yellow, and the cold colors, blue and violet. Warm and cold colors play a very important part in harmonious coloring.

Tints, shades, hues and complementary tones are terms indicating changes in color.

Tone and value are general terms, of which tone is the broader.

Tone is a term indicating any kind of change in color. There may be tones of tints, shades and hues. Tones of red, orange, yellow, green, blue and violet, warm tones and cold tones, bright tones and dull tones, in fact any variation is a tone. There are also tones of value.

Value is the measure of color compared with white and black. It is the lightness and darkness of the tones irrespective of the color. The washes as they enter the design or picture are values. The lightness and darkness of the tints, shades, hues and complementary tones may all become values when they enter in and become parts of the drawing, or design.

Tints are the lighter tones of a color and shades are the darker tones. The color itself is the dividing point between the tints and shades. For example, make yellow lighter and tints of yellow are formed. Make it darker and shades of yellow are formed.

Hues are the tones between two adjacent colors. In Fig. 2, let yellow be the color. Then the tints will be found between the yellow and white, and the shades between yellow and black (theoretical), and the orange hues of yellow between yellow and orange, and the green hues between yellow and green.

A Scale is an orderly series of tones. There may be scales of tints, shades, hues and values.

THE ESSENTIAL ELEMENTS OF COLOR are:

The Standard Colors
 The Primary Colors.
 The Secondary Colors
 The Complementary Colors
 Tones, Tints, Shades Hues
 and Values.

and the mechanical means of learning these elements are:

The Plain wash
 The Over-wash
 The Graded wash
 The Broken washes
 both wet and dry.

The Value or Strength of the wash is indicated by number as follows:

White	wash 1	wash 2	wash 3	wash 4	wash 5	wash 6	color
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This diagram shows the position of the Tints Shades and Hues in relation to the Color



FIG. 2

Complementary Colors and Tones. It will be seen from a study of A, Fig. 3, that the primary colors red, yellow, and blue, blended or mixed together by twos, form the secondary colors, orange, green and violet. Observe also that the primary and secondary colors taken together form the standard colors red, orange, yellow, green, blue and violet.

Intermediate colors are additional steps between the standard colors as shown in B. The name is formed by compounding the primary and secondary names together, forming red orange and yellow orange, yellow green and blue green, blue violet and red violet. B, Fig. 3, forms a color circuit. Intermediate colors are hues.

It is necessary that the three primary colors be present in the picture to make complete color harmony, but the beginner finds it difficult to handle three colors successfully. To reduce the number of colors and still make it possible to have complete color harmony, complementary colors are used.

Complementary Colors are two colors that unite in themselves the three primary colors. The complementary colors are therefore:

Red and green (green is yellow and blue blended).

Yellow and violet (violet is red and blue blended).

Blue and orange (orange is red and yellow blended).

In C, Fig. 3, the opposite colors as indicated by the arrows are complementary.

To gray a color is to add some color that will dull its brightness and make it more passive — like gray. Complementary colors are made gray by blending them together.

Secondary colors mixed together form colored grays.

$$\text{Primary colors: } \left\{ \begin{array}{l} \text{red} + \text{yellow} = \text{orange} \\ \text{yellow} + \text{blue} = \text{green} \\ \text{blue} + \text{red} = \text{violet} \end{array} \right\} \text{secondary colors.}$$

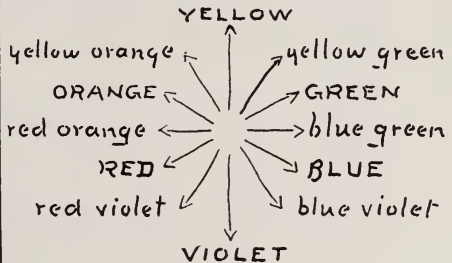
A

The Standard Colors
and one Intermediate.
color

- Red.
- red orange
- Orange.
- yellow orange.
- Yellow
- yellow green
- Green.
- blue green.
- Blue.
- blue violet.
- Violet.
- red violet.
- Red.

B

Complementary
Colors



C

FIG. 3

A chart showing the standard colors and how their tints, shades, hues and complementary tones are formed. Also the leading characteristic of each color:

Standard Colors	Tints	Shades	Hues	Complementary	Characteristic
Red	Water	Warm Gray	Violet or Orange	Green	Warm
Orange	"	Warm Gray	Red or Yellow	Blue	Warmer
Yellow	"	Warm Gray	Orange or Green	Violet	Light
Green	"	WG or CG	Yellow or Blue	Red	Neutral
Blue	"	Cold Gray	Green or Violet	Orange	Colder
Violet	"	Cold Gray	Blue or Red	Yellow	Cold

The result of mixing each primary color with the remaining standard colors and grays:

Red + Orange = the Orange hues of Red.
 Red + Yellow = the secondary color Orange.
 Red + Green = the complementary tones of Red.
 Red + Blue = the secondary color Violet.
 Red + Violet = the Violet hues of Red.
 Red + Warm Gray = the shades of Red.
 Red + Cold Gray = black.

Yellow + Red = the secondary color Orange.
 Yellow + Orange = the Orange hues of Yellow.
 Yellow + Green = the Green hues of Yellow.
 Yellow + Blue = the secondary color Green.
 Yellow + Violet = the complementary tones of Yellow.
 Yellow + Warm Gray = the shades of Yellow.
 Yellow + Cold Gray = Green tones of Gray.

Blue + Red = the secondary color Violet.
 Blue + Orange = the complementary tones of Blue.
 Blue + Yellow = the secondary color Green.
 Blue + Gray = the green hues of Blue.
 Blue + Violet = the violet hues of Blue.
 Blue + Warm Gray = the Green tones of Gray.
 Blue + Cold Gray = the shades of Blue.
 Warm Gray + Cold Gray = neutral Gray.

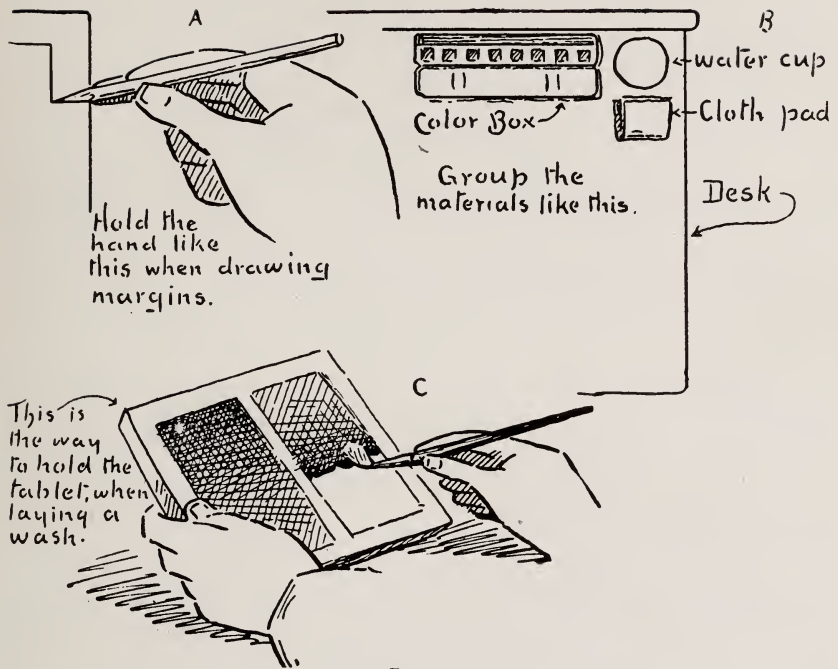


FIG. 4

The secondary colors mixed together by twos as follows:

Orange and green,
 Green and violet,
 Violet and orange,

Form colored grays.

The Mechanical Means of Applying Water Colors is through washes:

A wash is water tinted with color and then, by means of a brush, spread more or less evenly over the surface to be painted. A water-color drawing or painting is a number of superimposed washes representing a definite idea.

The washes in this course are known by their number. Wash 1 is the lightest, Wash 2 is a tone stronger, Wash 3 three tones stronger, and a Wash 6 is six times stronger than Wash 1. A color can be divided into any number of washes, but six are enough for practical purposes, and the number is the best name that can be given to the wash to designate its relative strength. This gives a scale with white at one end and the full color at the other, and six intermediate tones, as shown in Fig. 2. A wash may represent a tint, shade, hue or value.

Preparing the Wash. Prepare the wash as follows: (1) Dip the brush in water and press it into one of the compartments in the cover of the box. Do this until there is water enough in the compartment for the wash. (2) Rub off a little color with the brush, and mix it with the water in the compartment. It is now ready to apply to the paper.

Applying the Wash. Grasp the water color pad with the left hand and incline it at an angle of about 45 degrees, as shown in C, Fig. 4. Dip the brush in the wash, and apply the color with a full brush, working from the top downward. Keep the brush full of the color wash. The superfluous color that is left at the bottom may be removed by drying the brush on the cloth and then taking up the extra color by touching it with the dried brush. A wash dries in a few minutes and then another wash may be placed over the whole or part of the design at pleasure. These superimposed washes constitute the water color picture.

The kinds of washes used in water color painting are:

The plain wash.

The over wash.

The graded wash and

The broken washes.

These washes include practically all of the mechanical difficulties of water color painting. With these washes, colors are divided into tint tones, shade tones, hue tones, and complementary tones, thus practically covering the whole field of color.

The plain wash is a wash spread evenly over a surface and an over wash is placing one wash over another.

These washes were used in the Fourth and Fifth Year Books. The graded wash is used in this book. ~

Materials Used in Water Color Painting are:

A box of water colors.

A tablet of white drawing paper.

A cup to hold water and

A piece of cotton or linen cloth.

The water color box that seems to give the best satisfaction, that is the easiest to learn and teach, is one containing the six standard colors and two grays, a warm gray or brown and a cold gray or blue black. Such a box with perfect colors would be complete.

A water color tablet $4\frac{1}{2}$ x 6 inches is the best for ordinary practice. The 6 x 9 and 9 x 12 inch tablets are the next regular sizes.

The water cup should be low, with a broad base, so it will not easily tip over, and should hold at least half a pint of water.

The cloth is to be used as a blotter to dry the brush and to clean the box. Old cotton or linen cloth free from starch and that will absorb water readily, is what is needed.

Arrange the box of water colors, the cup of water and the cloth neatly folded as a pad, on the desk as shown in B, Fig. 4.

Boxes of color containing less than eight colors are more difficult to teach than a regular eight color box, and confusion often follows their use. When a box of more than eight colors is used, to avoid confusion, they should be arranged under the same headings as the eight color box, that is the yellows under yellow, the blues under blue, the browns under brown, and so on.

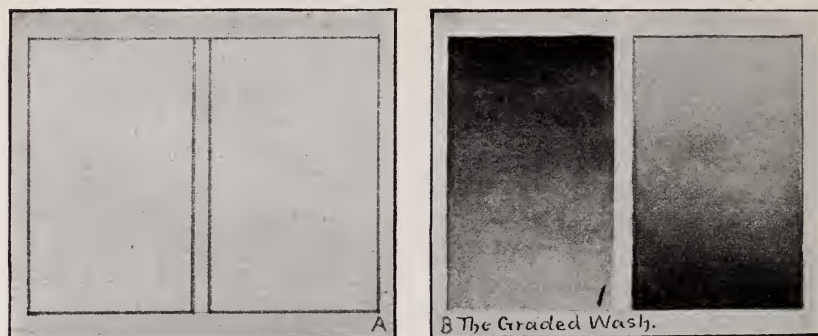


FIG. 5

The Graded Wash or the Blending of Tones

The graded wash varies:

From dark to light, as in graded wash 1, Fig. 5.

From light to dark, as in graded wash 2, Fig. 5.

Graded wash 1 is painted as follows:

Divide the water color tablet into two parts as shown in A, Fig. 5. Do this offhand without the use of ruler or measure. This can be done by placing a margin around the tablet about a half inch from the edge, using the finger as a gauge as in A, Fig. 4, and dividing the inclosed space into two parts.

Hold the water color pad in the hand and incline it at an angle of about 45 degrees as shown in C, Fig. 4.

Take the wash directly from the pan, about a Wash 5 or Wash 6 in strength, and beginning at the top paint once or twice across the space, then dip the tip of the brush in the water and stir it in one of the compartments of the cover of the box to mix the water thoroughly with the color already in the brush, then paint across once or twice more. Each time increase the amount of water in the brush, and each time mixing the water thoroughly with the color that is already in the brush by stirring it in a compartment of the cover. Add water very sparingly at first, increasing the amount as the wash grows lighter. Work with the brush full of the color wash.

Graded wash 2 is the reverse of 1. Begin at the top of the paper with nearly clear water, and gradually add the color, making the wash stronger until full strength is reached.

Drill Exercises

1. Paint graded washes 1 and 2 with cold gray.
2. Paint graded washes 1 and 2 with warm gray.
3. Paint graded washes 1 and 2 with red.
4. Paint graded washes 1 and 2 with orange.
5. Paint graded washes 1 and 2 with yellow.
6. Paint graded washes 1 and 2 with green.
7. Paint graded washes 1 and 2 with blue.
8. Paint graded washes 1 and 2 with violet.

Fig. 6 represents vase forms. These vase forms are made by doubling a sheet of drawing paper as in A, Fig. 6, and with scissors cutting the folded paper as indicated by the dotted line. Open the fold and the vase form is complete. Vases B to K show various shapes.

Make the forms about four inches high and study the proportion closely.

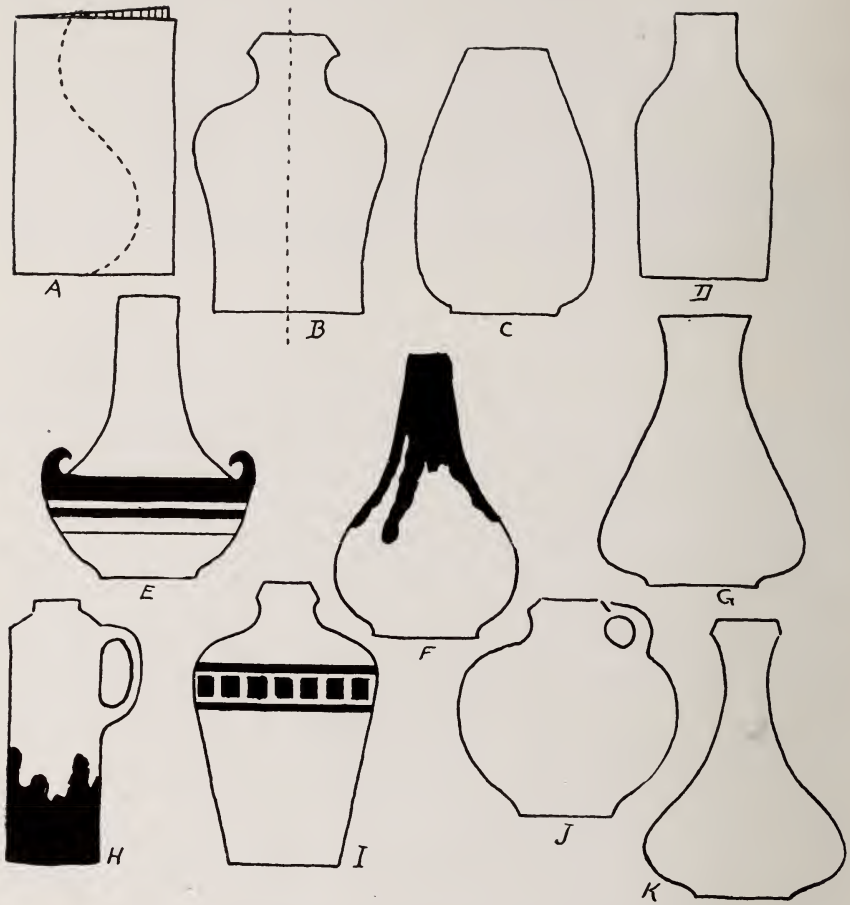
The vase forms may be decorated by bands, borders and irregular designs.

These vase forms are to give drill exercises for the graded wash as shown in Fig. 7. Lay the form on the tablet, mark around it and it is ready to color. Use a light vertical line as indicated by the dotted line in B as a guide to make the drawing vertical.

Fig. 7 represents three vase forms painted with the graded wash. A and B are painted with a graded wash from heavy to light, and vase C with a wash from light to heavy.

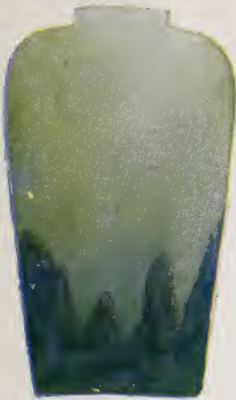
The vase forms may be painted with tint tones, shade tones, hue tones and complementary tones.

In colored plate 2, A, B and C are painted in the green hues of blue, and D, E and F in the blue hues of green.



Vase forms suitable for the graded wash.

FIG. 6



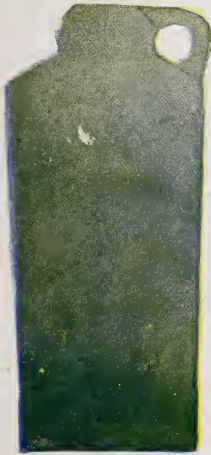
A



B



C



D



E



F

COLORED PLATE 2



FIG. 7

Drill Exercises

1. Paint a vase form with a graded wash of yellow. These would be tint tones.

2. Paint a vase form with a graded wash of red.

3. Paint a vase form with a graded wash of blue.

4. Paint a vase form with a graded wash of the shade tones of orange.

Mix say a wash 6 of orange mixed with warm gray and begin at top of the vase form, lay a graded wash the same as with tint tones. When painting a vase form from light to heavy, as C, Fig. 7, it is well to invert the vase when painting with shade, hue and complementary tones.

5. Paint a vase form with a graded wash of the shades of red.

6. Paint a vase form with a graded wash of the green hues of blue.

Mix up say a wash 5 of blue hued with green and paint as with tint tones.

7. Paint a vase form with a graded wash of the blue hues of green. The difference between the blue hues of green, and the green hues of blue, is that in the first green is modified and in the second the blue is modified. The result may be the same.

8. Paint a vase form with a graded wash of the complementary tones of blue. Mix up say a Wash 6 of blue, modify it with orange and paint as in tint tones.

9. Paint a vase form with a graded wash of the complementary tones of orange.

10. Paint a vase form with a graded wash of the complementary tones of yellow.

The secondary tones formed by mixing together two secondary colors give very beautiful combinations for this work.

The following are the combinations:

Green and violet.

Green and orange.

Orange and violet.

In C, colored plate 2, the vase is painted in the green hues of blue. Place a graded wash of blue, grayed with green, over the whole. When dry, add the dark part with the same color strengthened.

Vases A and B are both painted with the green hues of blue. Invert the vases. Place a wash 2 of green over the whole. When dry, place a graded wash of blue over the whole. Add the dark part of A with blue, grayed with green. Vases D, E and F are painted with the blue hues of green.

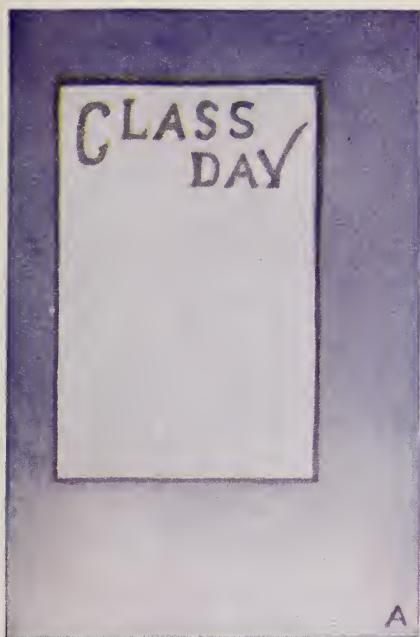
A and B, Fig. 8, represent two stencils suitable for use with the graded wash. A and B, Fig. 9, show an application of each, in the form of a Washington Day and a Lincoln Day program.

In colored plate 3, A and B show an application of stencil A, Fig. 8, in the complementary tones of blue and orange.

Colored plate 1, A and B, are applications of stencil B in the complementary tones of red and green.

These stencils are suitable for book-covers, special day exercises, programs, calendars, menu cards and similar purposes.

Stencils printed full size for a $4\frac{1}{2} \times 6$ inch tablet, will be found at the back of this book. Transfer to cardboard, or paper suitable for a stencil, cut out the shaded portion with a sharp knife, and they are ready for use.



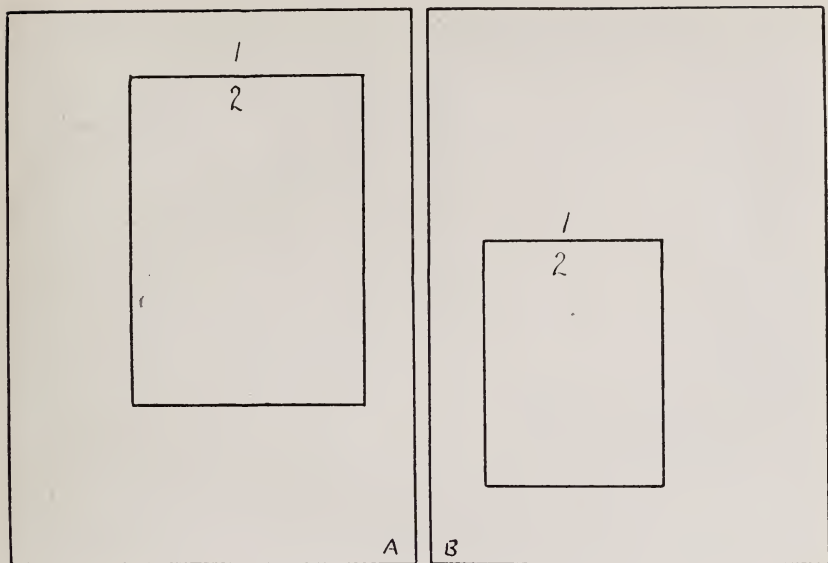


FIG. 8

Designs A and B, Fig. 9, are painted alike, except that the whole design A is painted with a plain wash and then the graded wash.

Designs A and B, Fig. 8, may be painted with tint tones, shade tones, hue tones, complementary tones and secondary tones of green as follows:

Tint Tones. Place a graded wash of green over the whole. When dry, paint the margins, letters and other details with stronger tints of green to harmonize with graded wash.

Shade tones. Mix a wash 5 of green and its shade color warm gray or brown and paint the whole design. Design B may be inverted so as to paint from dark to light. When dry add the letters, margin and details with shades of green.

Hue tones. Mix say a wash 4 of green and yellow and paint the whole design with a graded wash. When dry add the margin, letters and details with green and yellow mixed together.

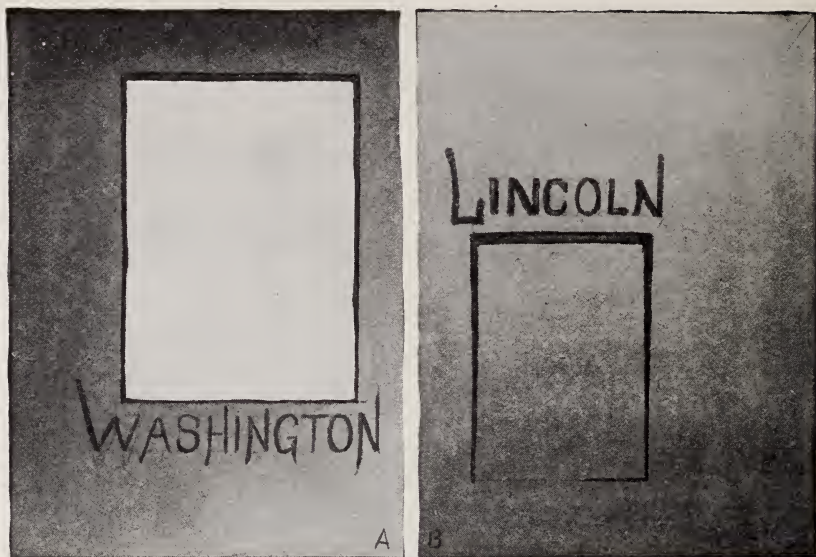


FIG. 9

Complementary tones. Mix say a wash 5 of green and its complement, red, and paint the whole design with a graded wash. When dry, paint the letters, margins and other details with complementary tones of green.

Secondary tones. Mix, say a wash 4, of green and violet and paint the whole design with a graded wash. When dry, paint the letters, margin and details with tones of green and violet.

Drill Exercises

1. Paint a design with the tint tones of green.
2. Paint a design with the shade tones of green.
3. Paint a design with the yellow hues of green.
4. Paint a design with the blue hues of green.
5. Paint a design with the complementary tones of green.
6. Paint a design with the secondary tones of green and violet.
7. Paint a design with the secondary tones of green and orange.

Any standard color may be used in the same manner as green in the above exercises, except that the primary colors red, yellow and blue have no secondary tones. For example, let yellow be the color. Then any of the designs could be painted.

With the tints of yellow.

With the shades of yellow.

With the orange hues of yellow.

With the green hues of yellow and

With the complementary tones of yellow.

In like manner all of the standard colors may be used.



FIG. 10

Fig. 10 is a simple wood interior consisting of a graded wash and several tree trunks. It is painted as follows:

Place a graded wash from heavy to light over the whole as shown in A. When dry paint the farthest tree about the same strength as the graded wash and each tree a bit stronger as the foreground is approached. To the nearest tree add more or less of detail.

Drill Exercises

1. Paint Fig. 10 entirely with black.
2. Paint Fig. 10 entirely with brown.
3. **BLUE AND ORANGE.** Mix a wash 4 of blue. Gray it slightly with orange, and paint the graded wash. When dry paint the farthest tree with blue and orange, about the same strength as the background and then each tree a little stronger, as the foreground is approached. Paint the details with orange and blue mixed together.
4. **YELLOW AND VIOLET.** Mix a wash 4 of violet, gray it with yellow, and paint the graded wash. Use violet for the farther tree and as the foreground is approached make the tree trunks a little stronger by adding yellow. Make the details of violet and yellow mixed together.
5. **RED AND GREEN.** Paint the graded wash with about a wash 4 of red and green mixed together. When dry paint the trees making those toward the foreground stronger. Paint the details with red and green.

Double Graded Washes. A, Fig. 11, is a wash graded from light to heavy and then to light again, and B represents a mountain added to this wash, thus suggesting a landscape. C and D carry the picture still further by adding a tree to the foreground. The aim is to associate the graded wash, the mountain and the tree together harmoniously.

The method, the colors and the order of their application is given, but the value of the washes and their color tones belong to the judgment of the painter.

To paint graded wash A with two colors, say blue and orange: Begin with blue and grade to the middle, then without cleaning the brush take up some orange and mix it with the blue already in the brush and finish the wash. The wash will be then blue graded to orange. (C, Colored plate 3, represents orange graded into blue.)

Drill Exercises

1. Paint C entirely with black.
2. Paint C entirely with brown.
3. **BLUE and ORANGE.** Paint A, B and D as follows: Paint wash A, Fig. 11, blue graded to orange. After it is dry paint the mountain as in B blue. After it is dry, paint the tree with blue and orange mixed together as in D.
4. **BLUE and ORANGE.** Paint A, B and D as follows: Paint the graded



FIG. 11

wash A orange graded to blue. Paint the mountain in B blue grayed with orange. Paint the tree and details orange and blue mixed together.

5. **YELLOW and VIOLET.** Paint A, B and D as follows: Paint the graded wash violet, grayed with yellow. When dry, paint the mountain violet grayed with yellow. Paint the tree and details yellow and violet mixed together.

The landscape in the first colored plate, is painted with red and green. Paint the sky with a plain wash of red, grayed with green. Paint the land with a graded wash of red and green. When dry, paint the land on each side of the road with a graded wash of red and green.

Paint the house and wood with red and green.

This landscape may be painted in the same manner with the other complementary colors; blue and orange, and yellow and violet.

C in colored plate 3 is a graded wash of orange and blue. Paint a graded wash of orange from light to heavy and in the middle add blue to the brush and mix it thoroughly with the orange already in the brush and finish. This is a foundation for a landscape.



FIG. 12

A, Fig. 12, represents a wash graded from heavy to light and then to heavy again. After this wash is dry add three trees as in B, the farther one lighter in value and the others stronger toward the foreground.

Drill Exercises

1. Paint Fig. 12 entirely with cold gray or black.
2. Paint Fig. 12 entirely with warm gray or brown.
3. **BLUE and ORANGE.** Paint the graded wash blue graded to orange in the foreground. This is done by beginning with about a wash 3 of blue and grading to the center, and then without cleaning the brush gradually adding orange. Paint the trees with blue and orange mixed together, letting the blue predominate in the farther tree and the orange as the foreground is approached.

4. **BLUE and ORANGE.** Begin with blue and blend to orange in the center and then to blue and orange in the foreground, then add the trees as in Exercise 3.

5. **YELLOW and VIOLET.** Paint the graded wash violet, grayed with yellow in such a manner that the violet will predominate in the sky and the yellow in the foreground. When dry paint the trees yellow and violet mixed together, letting the yellow predominate toward the foreground.

6. **RED and GREEN.** Paint the graded wash red grayed with green. When dry paint the trees red and green mixed together.



FIG. 13

Object Painting. All that has been said in the chapter on object drawing may be applied to object painting equally as well.

The great elements of form, color and value enter into object painting and become at once all important. In object drawing, form is the great element, but in object painting color and value become equally as prominent, and of these, value seems to be the connecting element that joins color and form together harmoniously.

Value relates to light and shade — to the lightness and darkness of the tones as they enter the drawing. A correct value is the proper strength of tone as it fits into the picture. The washes as they become a part of the picture represent values. The various tones represented

in Fig. 13 are values. To render values correctly is the most important mechanical element in picture making. Correct values represented by washes make the picture.

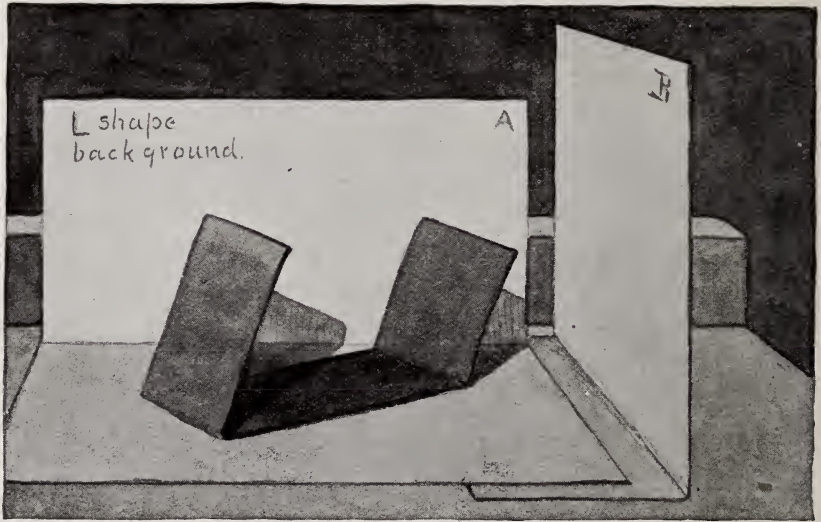


FIG. 14

An excellent plan to teach the seeing and rendering of values is as follows:

For a ground and background fold two pieces of drawing paper L shape, arrange them as A and B, Fig. 14. A forms the ground and background and B is to shut off the side or cross lights, thus making the light come from one direction. It is best for the light to come over the left shoulder.

Cut from the end of a sheet of drawing paper a strip about one inch wide and six inches long and fold it twice as shown in Fig. 15. Place this folded paper within the L shape background and it is ready to be drawn and painted.

Papers folded in this manner and placed within the L-shape background form a model in which the values, or washes, are distinct and in

sharp contrast with one another, which is desirable for first efforts. Avoid blended and cut-up shadows. Keep the values clear and separate.

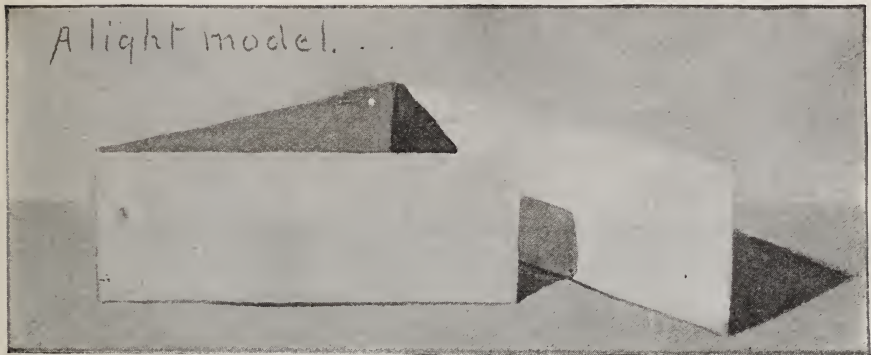


FIG. 15

Fig. 15 is an ideal model. To see the relative values on the model more clearly, throw the head slightly back, partly close the eyes, and look through the eyelashes. This will shut out the details and reveal the larger values, or masses of light and shade.

Use a variety of models, at least five, of different colors. Blotting paper makes excellent models, as it absorbs the light and shows a clear, dull surface, but other kinds of paper are good also. Procure a white, a yellow, a red, a blue and a brown model and paint each several times.

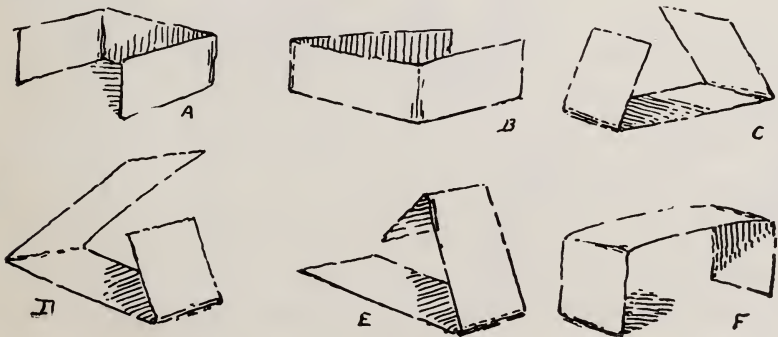


FIG. 16

Fig. 15 shows the values about as they would appear on the white model and Fig. 17 shows the values about as they would appear on the red, blue or brown model.

It is well to paint all models first with one color, say cold gray or black, then paint it several times in color, making it look as near like the original as possible.

Fig. 16 shows a variety of positions in which the model may be placed.

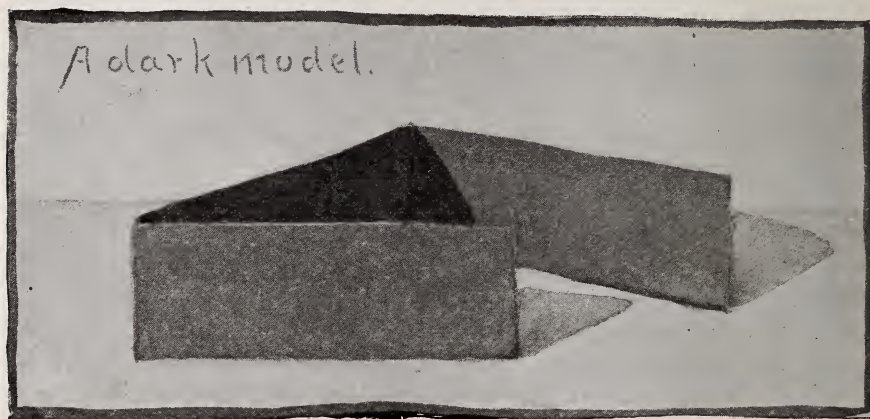
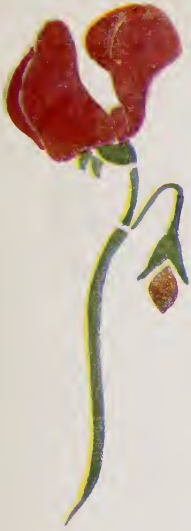


FIG. 17

Object Painting. In painting objects, the beginner tries to represent too much, too many details, too many little things that do not count. There are three great elements in the painting of objects; they are form, color, and value. These are the main elements and if rendered truthfully a good drawing must be the result.

In color plate 4 are paintings of the sweet pea. These flowers are painted in the most simple way possible, and are to show what to look for when studying the object. Observe that practically no details are represented, simply the form, the color and color value.



COLORED
PLATE 4



FIG. 18

Objects Suitable to Paint in Water Colors

Grasses and similar growths, such as the clover, sorrel, flax, oats, alfalfa, rushes and grains, weeds of simple form, sprouting bean, pea, corn, and wheat. Pin the model to a paper background that is similar to the paper on which the drawing is made, and paint direct without drawing and with only a light pencil line to mark directions and the main proportions.

Buds and Leaves. Not more than three buds and leaves on a stem. Make each spray simple and avoid confusion. Choose leaves with smooth edges. Remember that "simplicity is the supreme excellence."

Flowers should be of one color, like the buttercup, dandelion and violet. If of more than one color, the colors should be distinct and alone. Paint single flowers only. **Remove from the model all parts that are confusing.** Buttercups, pansies, poppies, yellow marguerites, sunflowers, sweet peas, dandelions, iris, marigold, anemone, violets, geranium, narcissus, rosebuds, water-lily buds and many others.

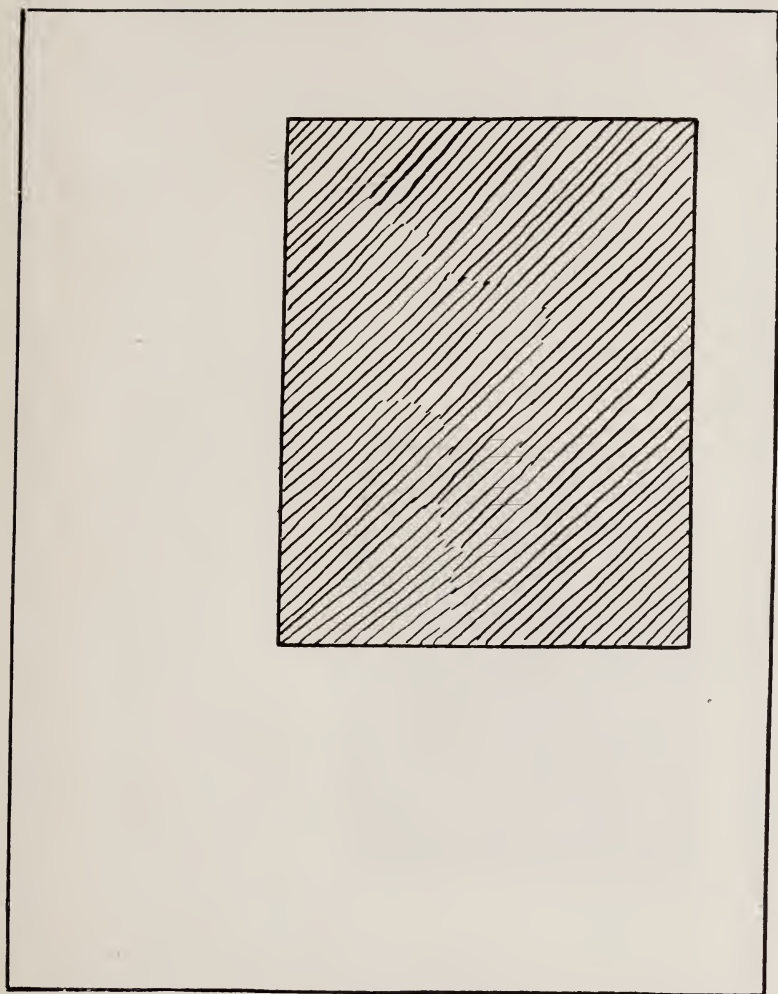
Trees. Excellent models. Aim for the general form and color. Avoid details. All trees are good, but at first choose a single tree standing alone, with the sky, water, or hill for a background, and with thick foliage. Paint one tree a number of times rather than to skip from tree to tree. Do not stand close to the tree when painting it, but far enough to eliminate the details such as the leaves and smaller limbs.

Fruit and Vegetables should be of distinct color, such as a yellow, red or green apple or tomato. Where the colors are blended use the wet wash. Place the object in an L-shape background. Paint one, two or three in a group. One is preferable. Apples, pears, plums, peaches, currants, cherries, grapes, lemons, radishes, carrots, cucumbers, pumpkins, gourds, and bananas are all good, if well chosen.

Common Things should be free from decorations, of simple form and of one color, or, if of more than one color, they should be distinct. Avoid detail and confusion. Place with a background as near as possible like the paper on which the drawing is made. Bright colored pottery, Japanese lanterns, bright, yet plainly dressed dolls, freshly baked biscuit or loaf of bread, a new berry, peach or grape basket, cheese box, etc.

Birds. Mounted specimens are necessary. Must be of simple decided color, few markings, and of simple form like the bluebird, yellowbird, blackbird, oriole, robin, or blue-jay. Butterflies, if of simple markings, are good.

Bits of Landscape. Look for single objects and plainness of background. Look for the big truths such as general color, form values, and character, and minimize the little details that surround the object. Ask, what do I wish to represent? Answer the question and then act. The following will suggest what to look for. A stump a log, a large stone, rocks, bunch of grass or rushes, corner of fence, an old trough, gate, bars old mill, tower or bridge, foot bridge, bend in the road, shock of corn, wheat or flax, end of wharf, boat at anchor, buoy, any object projecting from the land into the water, such as a point of rocks, an old tree trunk or bushes, an old barn, shed, or shanty.



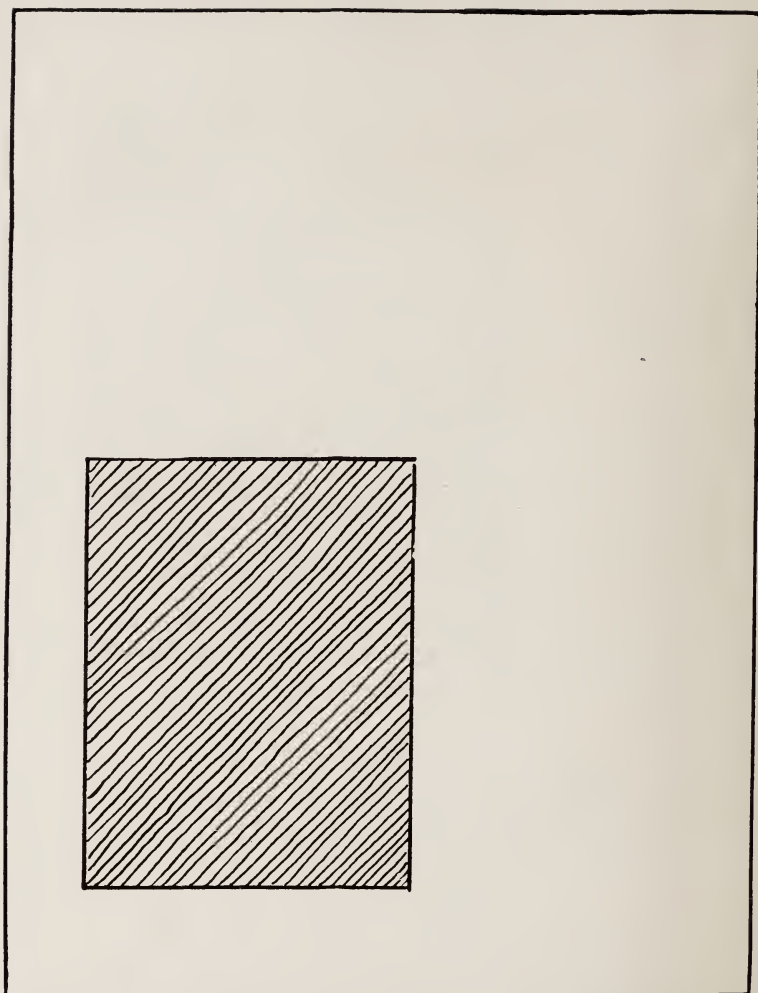


FIG. 20

